Better Homes and Gardens®

WOOD®

THE #1 MAGAZINE FOR HOME WOODWORKERS

JUNE 1991 • ISSUE NO.43
Display until June 11

HOT SUMMER PROJECT!
Mahogany Patio Table
See page 64

DUCK UNDER GLASS
See page 57

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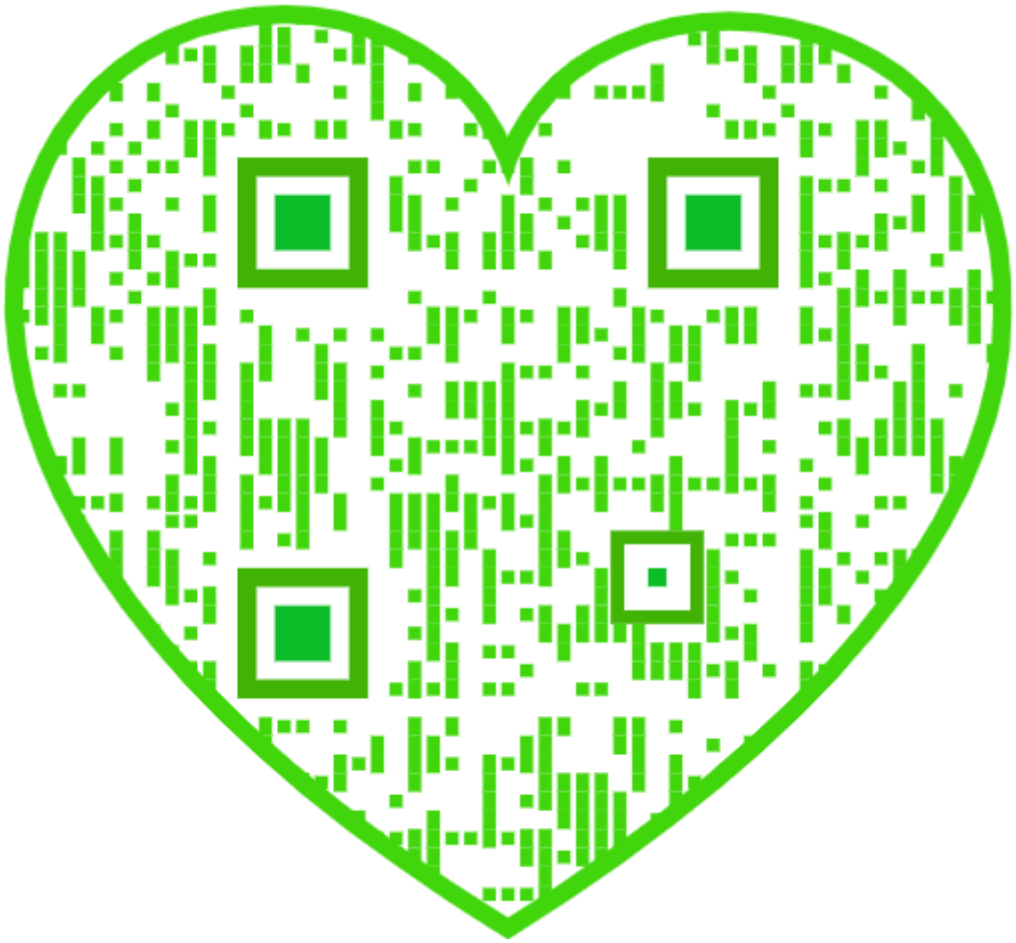

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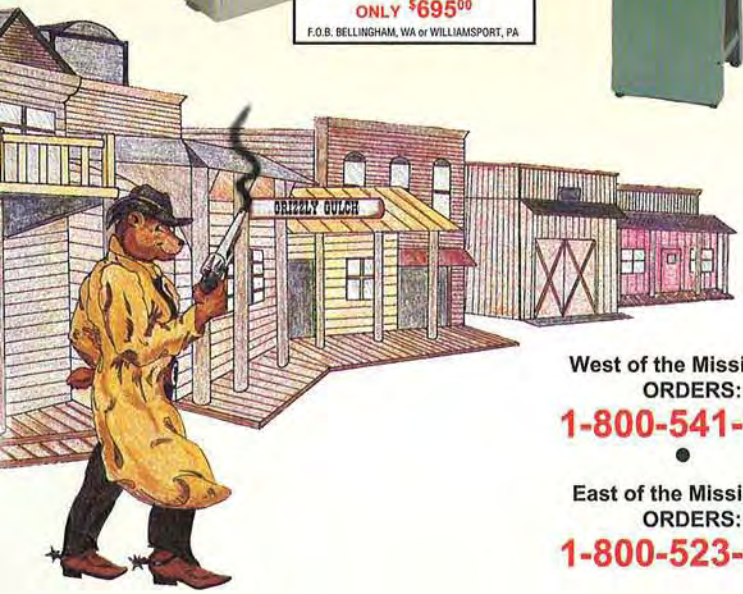

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91-109

THE FLY-BY-NIGHT GANG

THE EDITOR'S ANGLE

OH, WHAT A RELIEF IT IS!

DOVE

READY TO SET SAIL THIS SUMMER

Captain and Mrs. Downing beaming with pride a few minutes after the big move.

Those of you who have been subscribing to *WOOD*® magazine for some time now may remember that our design editor, Jim Downing, has been building a 30′ sailboat—one board at a time. In fact, he's been at it for four years now. But, as you can see, his persistence has paid off handsomely. After some 2,700 hours of his time, and about that many more hours donated by family members, the DOVE is nearly ready to set sail.

Since I'm one of those woodworkers who gets impatient if a project takes more than an evening or two, I was curious to find out how Jim feels now that he's finishing his mammoth undertaking. "It turned out to be a much more complex project than I had anticipated, so I'm relieved," Jim says. "There were times when I wished I could get out of the project, but I knew I couldn't."

Our resident sailor credits his family with helping to make the project a reality, especially wife Etta and Jim's father Loyal. "My dad has been at my house every Saturday for the past three years. He's been my steady helper. And Etta tells me that she's looking forward to having a social life again."

What's next for this industrious woodworker? "My projects will be quick and easy for awhile," Jim insists, "though I do want to build a cherry bedroom set after I get rested up."

Congratulations on a job well done, Captain!

Larry Clayton

Moving day at the Downing's: the DOVE en route to its custom-made trailer.

Photographs: George Ceolla

WE CARE!

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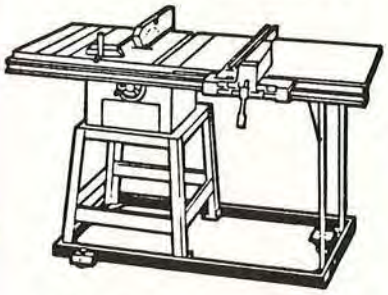

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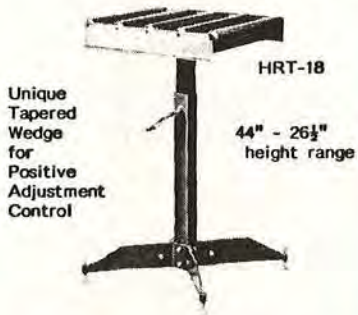

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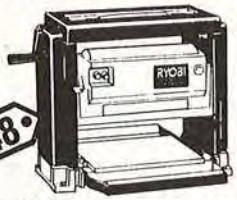
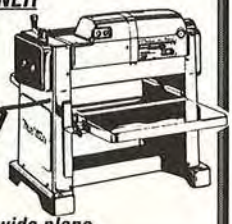


- *13 amps.*
- *8,000 RPM.*
- *1/8" deep, 10" wide plane.*

12" PORTABLE PLANER
#2012

makita

468•

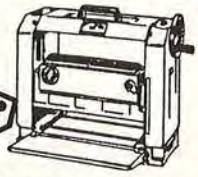


- *12 amps.*
- *8,000 RPM.*
- *1/8" to 6" deep, 12" wide plane.*

12-1/2" PORTABLE PLANER
#JWP-12

JET EQUIPMENT & TOOLS

358•

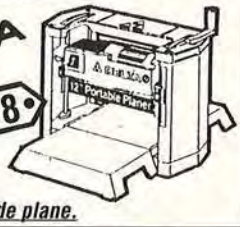


- *16 amps.*
- *8,000 RPM.*
- *1/32" to 6" deep, 12-1/2" wide plane.*

12" PORTABLE PLANER
#22-540

DELTA

418•

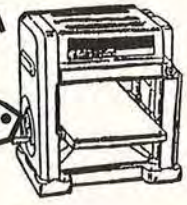


- *15 amps.*
- *8,000 RPM.*
- *1/8" deep, 12" wide plane.*

12" PORTABLE PLANER
#P12R

HITACHI

588•

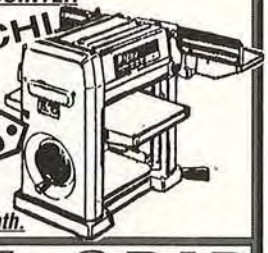


- *14 amps.*
- *10,400 RPM.*
- *3/32" cutting depth.*

12" PLANER/6" JOINTER
#P12RA

HITACHI

778•



- *14 amps.*
- *10,400 RPM.*
- *3/32" cutting depth.*

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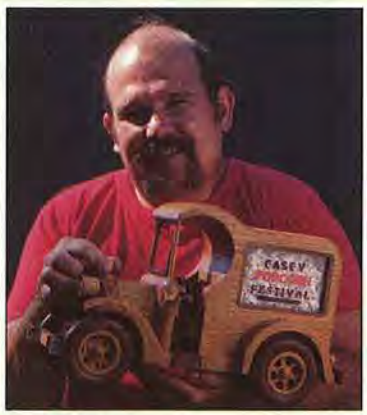
This issue's cover wood grain: light avodire *Cover photo: Hopkins Associates*

JUNE 1991 ISSUE NO. 43



CRAFTSMAN CLOSE-UP 31
Mr. Music Box
A maker of superb music boxes, Richard Gard deserves to wear a good guy's white hat. That's because in Casey, Illinois, his donated projects lift spirits and help worthy causes.

Northwest coast Indian carvings 36
Take in a showcase of mysterious carved masks, bowls, and boats that marks the artistic peak of a unique North American culture.

Central dust collection 40
Need an affordable, effective way to rid dust from your shop? Then check out our complete, do-it-yourself system that relies on common PVC pipe and fittings.

Down-to-business dust collector 46
This homemade louvered box installs behind a radial-arm saw and connects to your collection system for instant local pickup.

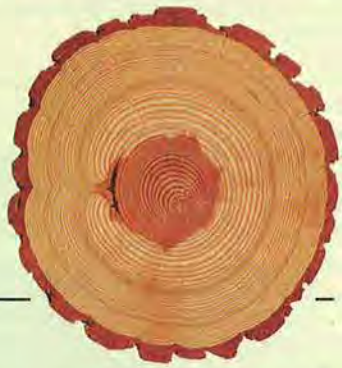
The dust stops here 48
With our easy-to-make hood attachment, you can siphon the shavings from your portable planer and send them to your collection system.

High-flying balloon mobile 50
Turn and hang our wooden balloons, three in all, and then watch them gently bob up and down in a nifty mobile configuration. We varied the look of each balloon by mixing light and dark woods in laminated blocks prior to turning. To suspend the balloons, we strung each with fishing line, and then we attached them to a pair of birch dowel rods.

Cumulative index for issues 33-41 53
Find the projects, tool comparisons, techniques, and feature stories for 9 recent issues of *WOOD*® magazine in this easy-to-use reference.

Duck under glass 57
Scrollsawed pieces sandwiched between panes of glass and forming a wildlife scene make this a must-do project for sportsmen.

Revelation in the rings 60
Learn how reading tree rings helps a special breed of scientists reconstruct the climatic events of the past.



Casual classics II 64
Last issue, you received our mahogany outdoor chair plans; here, you'll find the complete design for the striking complementary table.

TURNING
Construct-a-chuck 68
Woodturners, you can shape goblets and small boxes with this adaptable lathe chuck. It's made from a wood blank and a hose clamp.

Lathe-laid eggs 70
Fill a basket with hollow wooden eggs using our novel lathe chuck.

THE CRAFT SHOP
One whale of a cutting board 72

Barnyard favorites 74

Ladies' cosmetic mirror 76

DEVELOP YOUR SHOP SKILLS
How to resaw safely and simply 78

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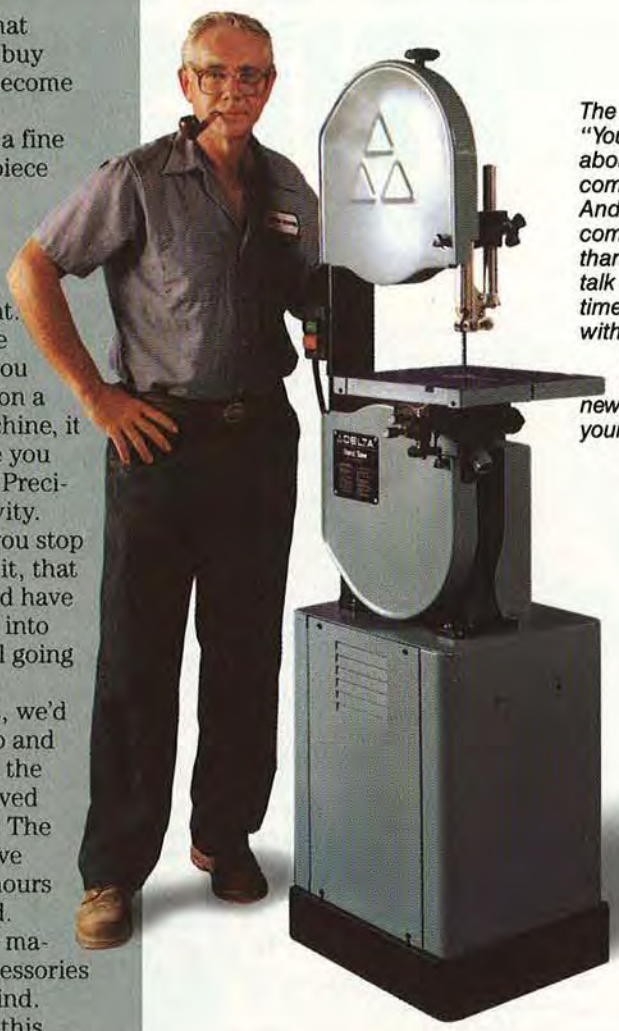

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TALKING BACK

Print this article

We welcome comments, criticisms, suggestions, and even compliments. Send your correspondence to: Talking Back, Better Homes and Gardens® *WOOD*® Magazine, P.O. Box 11454, Des Moines, IA 50336-1454.

Fire expert warns: Don't build that ventilator

Efforts to vent hazardous vapors out of the shop could blow up in your face—literally—says reader James M. Feld, a Fairfield, California, fire-protection engineer. Feld wrote to warn us that the home-made basement ventilator we featured on pages 72-73 of the December 1990 issue of WOOD *magazine increased the risk of fire and explosion. In that article, we told you that the basement-shop ventilator wasn't a substitute for a spray booth, but was intended to dilute light vapors. When a draft of our article passed muster with the Center for Safety in the Arts, in New York—publisher of the book* Ventilation*—we thought it safe.*

We called for clarification. Here's what Feld said:

"Heavier-than-air fumes could accumulate in a basement shop, and electrical arcing in the fan motor could ignite the whole basement." Feld suggests either substituting an [expensive] "intrinsically safe motor," or using a belt-driven fan powered by a motor isolated from the fumes.

"The article is most correct in encouraging the use of a Material Safety Data Sheet for all products used," he says, noting that the sheet reproduced in the article shows that Krylon Fixatif Spray is only a moderate health risk but an extreme fire risk. In the presence of volatile vapors, simple acts such as turning on a light or using a power tool can spark such uncommon but deadly fires and explosions. A water-heater pilot light can too, Feld warns.

Responding to Feld's concerns, Michael McCann, executive director of the Center for Safety in the Arts, warns against using dilution ventilation to clear high vapor concentrations and against spraying aerosols directly at the fan motor or filter.

Editor's note: *Many local fire departments will answer questions over the telephone or make home visits to help you spot hazards. Be sure to call on a non-emergency telephone number.*

Tool Issue issue, take two

In January, we ran one of several letters from readers who felt we had let them down by devoting the entire October issue to tool comparisons. Since then, readers have been leaping out of the woodwork to defend our special WOOD® *magazine issue that focused on woodworking power tools. Some excerpts follow:*

That letter was not necessarily the consensus of *WOOD* magazine readers.

—Robert Adler, Watertown, N.Y.

We invite concise, unbiased tool comparisons.

—Glenn Clevenger, Hood River, Ore.

I am a "rookie" woodworker trying to set up a shop in my basement. Your issue helped me buy a drill press. Thanks.

—Randy Baker, Ringgold, Ga.

It was especially nice to find out that the issue was free [to subscribers]. Your new eight-issue format is amazing when you consider that most people these days give you less for your dollar.

—Glenn Benjamin, Rome, N.Y.

I hope you will update [the power tool evaluation] at least once a year.

—Richard Weaver, Athens, Ga.

The tool manufacturers know they have competition, especially when experts from *WOOD* magazine put tools to the test.

—Herman Lavine, Galt, Calif.

Reader wants pen and pencil innards

Would you know of a source for purchasing mechanics for wood-bodied pen and pencil sets? Have you ever featured a project on making wood pen sets? I also am looking for special stud-type hinges to make wood cases for wood pens—the type where you just drill a hole and push these hinges into them.

—Martin Giesbrecht, Man., Canada

Martin, we will be showing readers how to turn pens on a drill press or lathe in the August 1991 issue. You can get a jump on purchasing pen innards, though. Write to Craft Supplies USA, 1287 E. 1120 South, Provo UT 84606, or call 801/373-0917. As for the pencil mechanisms and hinges, I'm afraid we can't help.

Continued on page 10

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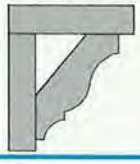

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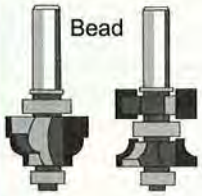

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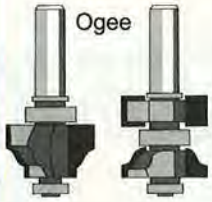

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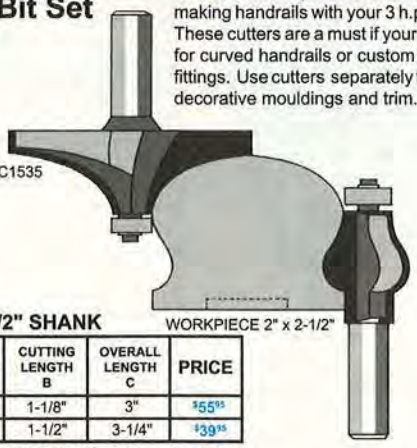

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TALKING BACK

Continued from page 9

Cigar-store Indian, turn around

I would like to carve the cigar-store Indian in your April 1991 issue (p. 38), but in going over the instructions, I discovered no rear-view photograph of the head and headdress as mentioned in the article.

David Price, Rockville, Md.

David, we apologize to you and other carvers for the omission. We trust the photo right *will help.*

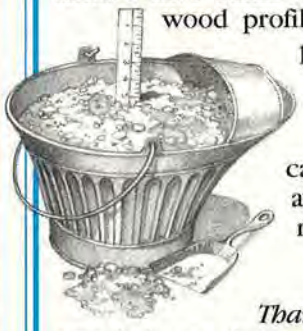
Prayer of the Woods revisited

I'd like to comment on the January issue, Ask *WOOD*, page 91, where you quoted the "Prayer of the Woods." The poem quoted for Mr. Dreves of Hillsdale, N.Y. was incomplete to the extent that the first line and original title were absent. Many years ago, I read this poem as a preface to a book and according to the information shown there, this poem was originally translated from a Portuguese inscription posted on timber trees in Portugal. The title of the poem was "To the Wayfarer" and the first line read "Ye who pass by and would raise your hand against me, hearken ere you harm me." Although the beauty of trees has been praised by many poets, the utility of trees and wood has rarely been better expressed than in that poem.

—Wayne B. Morgan, Macon, Ga.

Reader has burning inquiry

First, let me congratulate you for putting out one of the most comprehensive woodworking magazines I have come in contact with. Regarding your wood profiles, you cover just about every possibility for the featured tree except for its performance in the fireplace. How much ash does it leave, what's its heating capacity, effect on the chimney, average drying time, and approximate cost per cord.



—Stu Wall, Northbrook, Ill.

Thanks for writing, Stu. While wood is an important fuel in many areas, we don't have the space to include the data you suggest. We concentrate our efforts on the woodworking aspects of this wonderfully versatile material, letting others deal with the issue you raised. We tracked down for you a good source of information on the heating values of different woods. Write to the USDA Forest Service, 14th and Independence SW, Washington, DC 20250. Mark your request "Attention timber management." Your local Cooperative Extension Service also may be able to help.

A rose is a rose is...intarsia?

Over the past 10 years, I have noticed the proliferation of interlocking wood pictures and designs. Your article featuring Judy Gale Roberts, August 1988, was perhaps the catalyst for the current explosion. She represents the state of the art in this "new" avenue of woodworking.

In another issue you state that a reader had identified this type of work as "intarsia." Had you checked the library, you would have found that intarsia is Latin for 'inlay'. Tarsia in French, means exotic woods, precious stones, ivory, or metals inserted into another medium, usually wood, and

flush mounted, a description which you will agree does not fit.

A rose by any other name would smell as sweet. However, it does not follow that all sweet-smelling flowers are therefore roses.

Ladies and gentlemen of *WOOD*® magazine, however unwittingly it began, you are responsible for the current proliferation of this unique wood technique masquerading under an assumed name.

—John Sedgwick, Stoney Creek, Ont.

John, thanks for your comments and included reference materials. We are impressed by your research into the name, and perhaps in some technical sense you are correct.

But if we misused the term, we did so on good authority. Webster's Ninth New Collegiate Dictionary, printed in 1989, defines intarsia as "a mosaic, usually of wood, fitted into a support." The Complete Dictionary of Wood, published in 1979 by Thomas Corkhill, says intarsia is "Inlays forming pictorial effects. Pictures formed by inlays of differently colored woods." Thanks for writing. We appreciate your interest.

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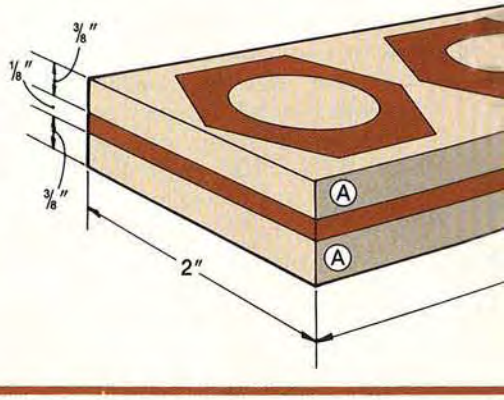
Print this article

Note: *This project requires thin stock. You can resaw or plane thicker stock to the correct thicknesses, or special order it. See the Buying Guide on the next page.*

1 Rip and crosscut two ⅜"-thick outside pieces (A) to 2×9". For the ⅛"-thick laminate center (B), purchase or resaw stock of a contrasting color. Rip and crosscut to 2×9". (We used five different kinds of wood for contrasting laminations, but feel free to design your own.) One 9"-inch lamination makes four rings.

2 Glue and clamp the three pieces face-to-face in the arrangement shown on the Laminating and Patterns Layout Drawing *below*. (We used woodworkers' glue to make up our laminations.)

3 Using carbon paper and the full-sized ring patterns *opposite*, transfer the patterns you want to

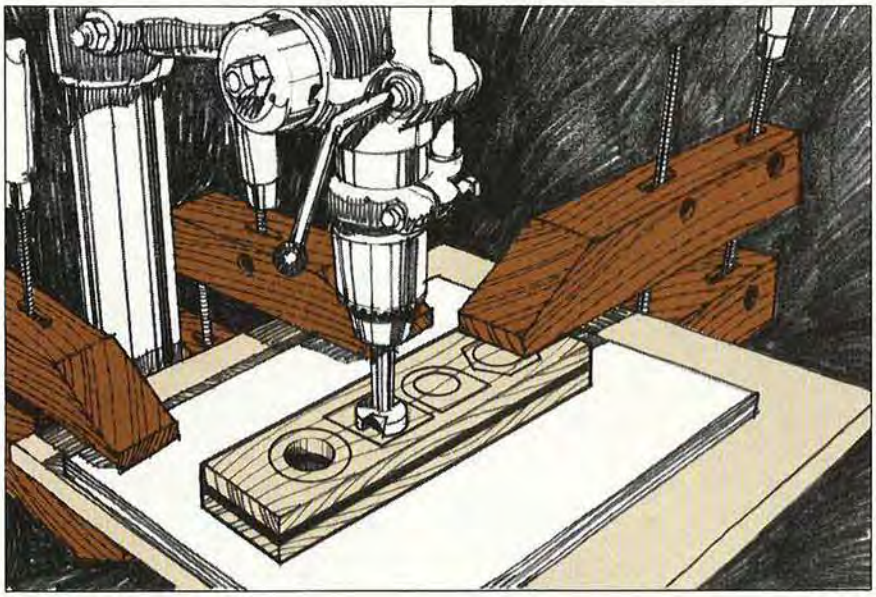


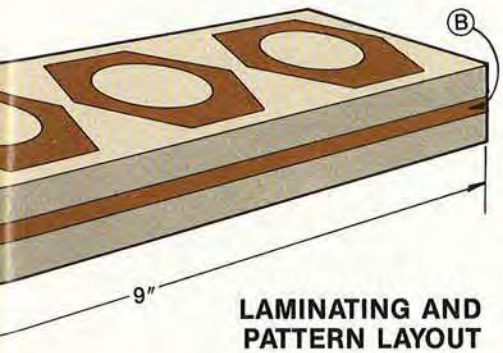
the top surface of the lamination. Be sure to mark the centerpoint of the inner circle for each ring.

4 Using the marked centerpoints as guides, bore the center hole of each ring with a 1¼" bit chucked on a drill press. (We used a Forstner bit to ensure a smooth inside cut and minimize sanding. A holesaw would also work if you don't have the correct-size bit.) Back the lamination with a wood scrap as shown in the drawing *below*. This prevents chip-out on the bottom of the hole. (We also clamped the lamination to the drill press table.)

5 Cut the rings to shape with a bandsaw or scrollsaw. (We cut outside the line, and then sanded to the line using a belt sander with 180-grit paper.) If you make just one style of ring and want a perfect match, clamp them together and sand all simultaneously.

6 Sand smooth and round-over the edges, if you wish. (We chucked a 1" drum sander in a drill press to sand the inside of the rings.) Finish as desired. (We strung the rings on a horizontal wire to elminate handling them, and then applied several thin coats of Deft spray-on lacquer.)

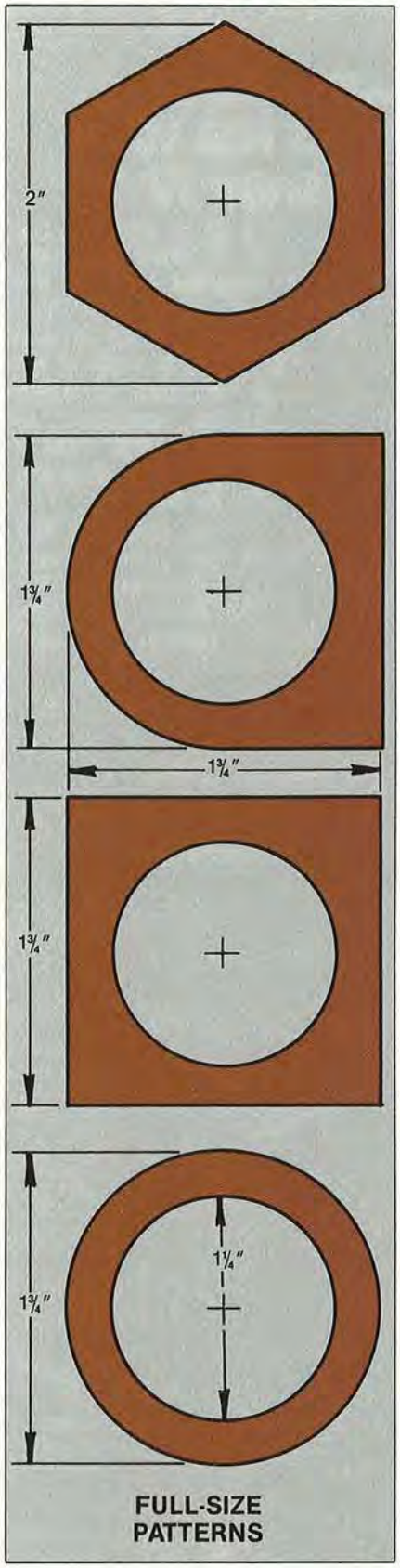




LAMINATING AND PATTERN LAYOUT

Buying guide

• **Thin stock.** ⅛×3×24"-thick oak, catalog no. 12203, $3.20; walnut, catalog no. 12187, $3.80; cherry, catalog no. 12161, $3.80; maple, catalog no. 12146, $3.45. Minimum order $10.00 plus $3.50 handling. The Woodworkers' Store, 21801 Industrial Blvd., Rogers, MN 55374, or 612/428-2199.



FULL-SIZE PATTERNS

Project Design: David Ashe Illustrations: Bill Zaun, Lippisch Design Inc. Photograph: Bob Calmer

EARN CASH, PRIZES FOR YOUR TOP SHOP TIP

Do you have a great shop tip (or two) you'd like to share with other *WOOD*® magazine readers? For each published submission, you will get at least $25 from *WOOD* magazine (as much as $200 if we devote a page or more of space elsewhere in the magazine to your idea). You also may earn a woodworking tool for submitting the Top Shop Tip for the issue.

We try not to use shop tips that have appeared in other magazines, so please send yours to only one. We do not return shop tips. Mail your tips, address, and daytime phone number to:

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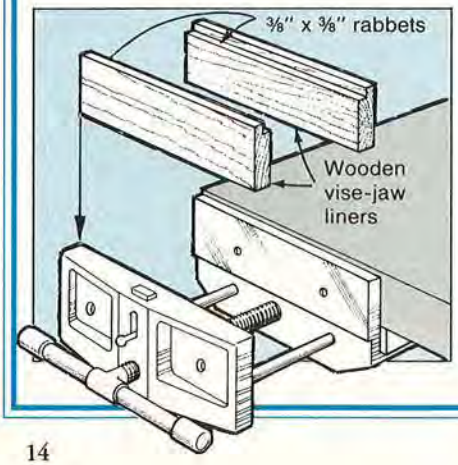
The rabbet habit makes your vise more versatile

Your workpiece rocks up and down and keeps falling out of the vise whenever you try to work on the face. You need a better grip.

TIP: When you make jaw liners for your vise, cut a ⅜×⅜" rabbet along the top inside edge of each liner. Install the liners flush with the benchtop. The rabbeted edge lets you clamp the workpiece firmly while keeping the face above the bench and vise.

—Bob Colpetzer, Clinton, Tenn.



True rough boards on radial-arm saw

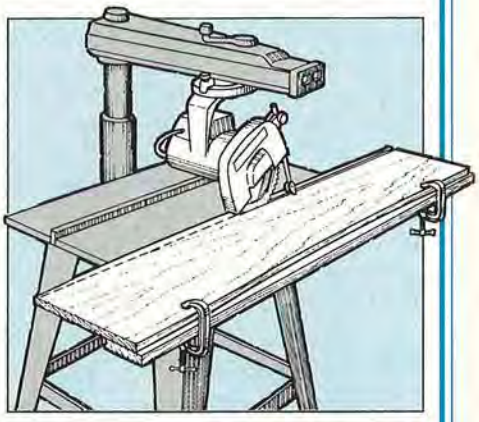
In issue 37, September 1990, we showed you how to cut a straight edge on a rough board using your tablesaw. But, what do you do if you have a radial-arm saw?

TIP: Set up your radial-arm saw for ripping, making sure the blade is parallel with the front edge of the table. Clamp a straightedge or guide board to the bottom of your workpiece, parallel with the cutting line and far enough from the cutting edge for stability and safety while cutting. Flip the board over and, guiding the straightedge along the front of the saw table, cut the true edge. The second edge can be cut with the regular rip fence.

—Walter Pleier, Greenville, N.C.

TOP SHOP TIP

For his tip, Walter receives a Delta model 31-070 1" belt sander with flexible shaft shown at *right*.

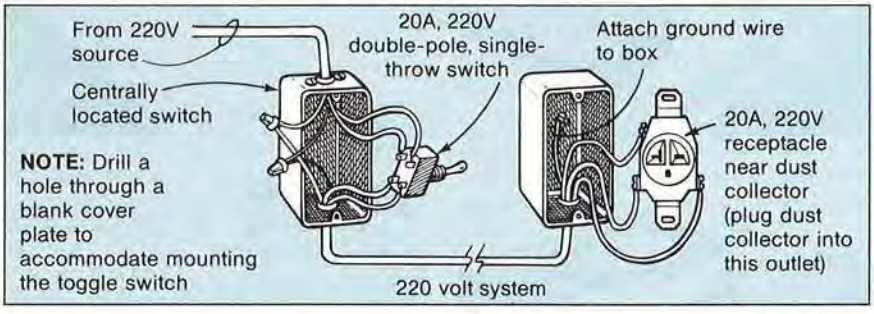


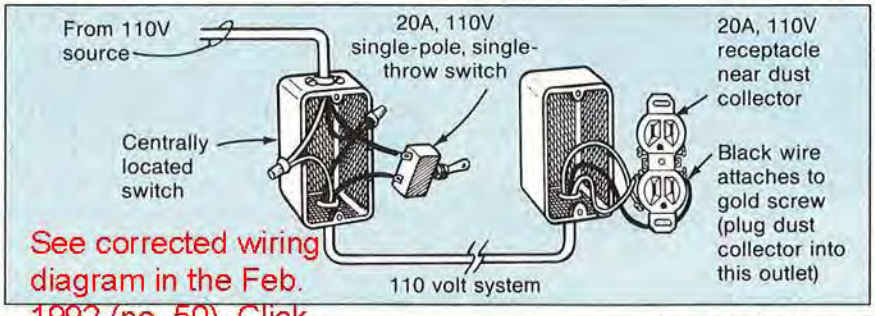
Remote dust-collector switch saves you time and energy

Dust collectors help you keep the air and the floor of your shop as clean as possible, but it's a hassle to walk over to the collector and turn it on or off each time you operate a power tool.

TIP: Install a remote switch for your dust-collection system. Place the switch at a convenient location in your shop. Simply purchase the appropriate switch, receptacle, two electrical boxes, and wiring, as shown *below,* from your local hardware store. Enclose the wires in conduit where required. Note that 220-volt and 110-volt collectors require different components and wiring procedures.

—From the **WOOD** *magazine shop*


From 220V source
Centrally located switch
20A, 220V double-pole, single-throw switch
Attach ground wire to box
20A, 220V receptacle near dust collector (plug dust collector into this outlet)
NOTE: Drill a hole through a blank cover plate to accommodate mounting the toggle switch
220 volt system


From 110V source
Centrally located switch
20A, 110V single-pole, single-throw switch
20A, 110V receptacle near dust collector
Black wire attaches to gold screw (plug dust collector into this outlet)
110 volt system

See corrected wiring diagram in the Feb. 1992 (no. 50). Click here to view.

Continued on page 16

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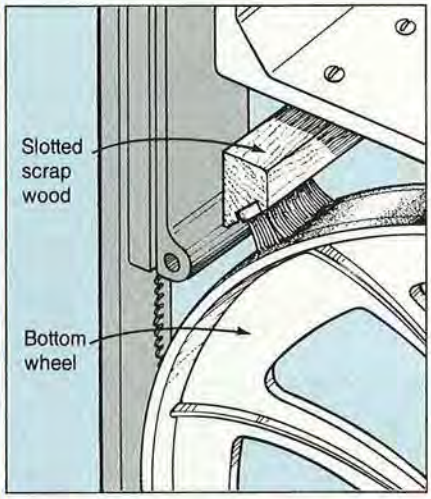
TIPS FROM YOUR SHOP (AND OURS)

Continued from page 14

Toothbrushes can clean more than your teeth

Clean tires on your bandsaw wheels can reduce blade breakage and prevent tracking problems. But, cleaning them is easy to overlook, and as soon as you do clean them, they start getting dusty and gritty again.



TIP: Mount toothbrushes on brackets to clean the tires constantly. The example shown here is for a 14" Delta machine, but would fit most bandsaws with some modifications. Cut the brush handle short and mount the bristle head in a slotted piece of wood with a screw. Or, you could glue a brush to a metal angle bracket with epoxy. Provide slotted mounting holes or add washers for adjustment.

—Laszlo Laczko, San Jose, Calif.

Plastic jug helps keep air and sprayer clean

When cleaning a sprayer, you can end up filling the air with paint and thinner. This is environmentally shaky and wasteful to boot.

TIP: Rinse a one-gallon plastic bleach bottle thoroughly and cut a 4×4" hole in the side. Then, glue a woven dishwashing scrubber over the hole with silicone adhesive. Heavy cloth such as canvas or denim would work also. Now, clean the gun by spraying into the top of the jug. The thinner will stay inside the jug. If vapor does escape through the jug openings, reduce your sprayer pressure. After the thinner sits for a while, the impurities will settle out and you can reuse the clean thinner.

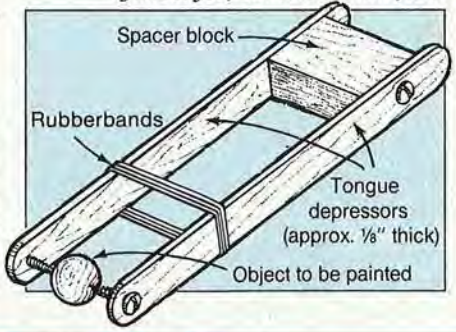
—Tom Haltmeyer, Peoria, Ariz.

When project painting, not finger painting, is the object

Painting a small part, especially a ball, often results in a better coat of paint on your fingers than on the thing you're trying to paint. Then, you have to figure out some way to set it down to dry.

TIP: Screw tongue depressors to a scrapwood block. Drill a hole through the other end of each tongue depressor, and drive a screw into each one. Clamp the object between the screw points for painting (and set the whole thing aside for drying). Stretch a rubber band around the tongue depressors for more tension.

—Jim Mayer, Lake Lotawana, Mo.



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#602		3/16" Spiral Cutter		3/16"	5/8"	1/4" *	$12.00
#603		1/4" Spiral Cutter		1/4"	3/4"	1/4"	$12.00
#903		1/4" Spiral Cutter		1/4"	3/4"	1/2" *	$12.00
#904		3/8" Spiral Cutter		3/8"	1"	1/2" *	$24.00
#905		1/2" Spiral Cutter		1/2"	1 1/2"	1/2"	$29.00
#350		1/8" Round Over	1/8" R	3/4"	3/8"	1/4"	$11.00
#351		3/16" Round Over	3/16" R	7/8"	1/2"	1/4"	$11.00
#230		1/4" Round Over	1/4" R	1"	1/2"	1/4"	$12.00
#353		5/16" Round Over	5/16" R	1 1/8"	1/2"	1/4"	$14.00
#209		3/8" Round Over	3/8" R	1 1/4"	5/8"	1/4"	$15.00
#355		1/2" Round Over	1/2" R	1 1/2"	3/4"	1/4"	$17.00
#656		3/4" Round Over	3/4" R	2"	7/8"	1/2"	$21.00
#199		Multiform Moulding	Unlimited Patterns	2 1/4"	2"	1/2"	$40.00
#340		1/8" Cove	1/8" R	5/8"	3/8"	1/4"	$12.00
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#207		1/2" Cove	1/2" R	1 1/2"	5/8"	1/4"	$14.00
#208		3/4" Cove	3/4" R	1 7/8"	3/4"	1/2"	$26.00
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#211		3/8" Core Box	round nose	3/8"	3/8"	1/4"	$10.00
#212		1/2" Core Box	round nose	1/2"	1 11/32"	1/4"	$13.00
#418		3/4" Core Box	round nose	3/4"	5/8"	1/4"	$15.00
#213		1" Core Box	round nose	1"	3/4"	1/2"	$17.00
#214		1/4" Straight	plunge cutting	1/4"	3/4"	1/4"	$ 6.50
#215		5/16" Straight	plunge cutting	5/16"	1"	1/4"	$ 6.50
#216		3/8" Straight	plunge cutting	3/8"	1"	1/4"	$ 6.50
#217		7/16" Straight	plunge cutting	7/16"	1"	1/4"	$ 6.50
#474		1/2" Straight	plunge cutting	1/2"	1"	1/4"	$ 7.00
#775		1/2" Straight	plunge cutting	1/2"	2"	1/2"	$14.00
#218		5/8" Straight	plunge cutting	5/8"	1"	1/4"	$ 7.00
#219		3/4" Straight	plunge cutting	3/4"	1"	1/4"	$ 9.50
#220		1" Straight	plunge cutting	1"	1 1/2"	1/2"	$11.00
#500		3/8" Flush Trimming		3/8"	1/2"	1/4"	$ 7.00
#502		1/2" Flush Trimming		1/2"	1/2"	1/4"	$ 7.50
#503		1/2" Flush Trimming		1/2"	1"	1/4"	$ 8.50
#221		1/2" Flush Trimming		1/2"	1 3/16"	1/2"	$ 8.00
#545		Tongue & Groove	Straight	1 5/8"	1"	1/4"	$29.00
#845		Tongue & Groove	Straight	1 5/8"	1"	1/2"	$29.00
#546		Tongue & Groove	Wedge	1 3/16"	1"	1/4"	$29.00
#846		Tongue & Groove	Wedge	1 5/8"	1"	1/2"	$29.00
#450		1/8" Beading	1/8" R	3/4"	3/8"	1/4"	$11.00
#451		3/16" Beading	3/16" R	7/8"	1/2"	1/4"	$11.00
#233		1/4" Beading	1/4" R	1"	1/2"	1/4"	$13.00
#453		5/16" Beading	5/16" R	1 1/8"	1/2"	1/4"	$14.00
#454		3/8" Beading	3/8" R	1 1/4"	5/8"	1/4"	$15.50
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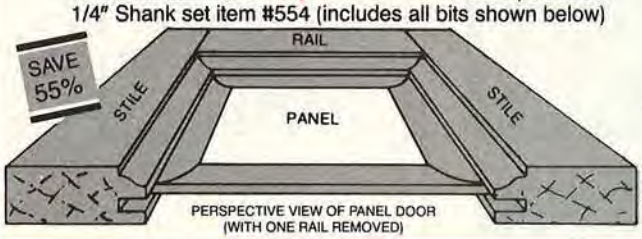

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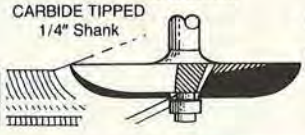

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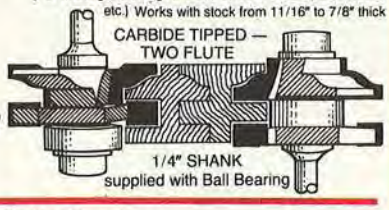

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TIPS FROM YOUR SHOP (AND OURS)

Continued from page 16

Brush wiper cuts paint mess

Every time you wipe your brush on the edge of a paint can, you get a little more paint into the groove. Pretty soon, you have paint dripping down the side.

TIP: Stretch a piece of reinforced strapping tape across the top of the opened can and pinch the sticky sides together to make a terrific brush-wiping edge. Duct tape or masking tape would work, too.

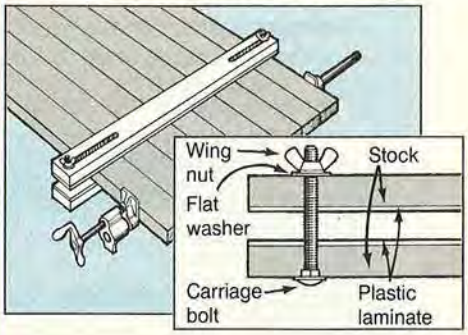
—Herbert Akers, Rockville, Md.

Scrap plastic laminate solves sticky problem

You're clamping boards across edge-glued stock to keep it flat. But, you don't have enough hands to hold them, tighten the clamps, and slip in waxed paper to keep the boards from becoming a permanent part of your project.

TIP: You can save the waxed paper for wrapping sandwiches if, instead, you cement scraps of plastic laminate to the inside surfaces of your alignment boards. Both setup and cleanup will be easier.

—Dan Campbell, Meyersville, N.J.

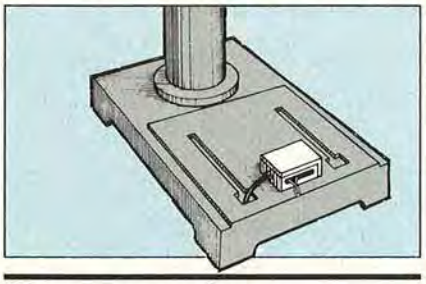


Sump-pump switch keeps hands free at drill press

Some drill-press operations require both hands, making it difficult to flip the switch, particularly in an emergency. And, looking away from the work to find the switch could cause an accident.

TIP: Put a foot-operated control on your drill press. Install a sump-pump switch (available from plumbing-supply dealers) on the machine's base. Mount the switch where it will be easy to reach with your foot but won't be turned on accidentally.

—Raymond Matthews, Port Clinton, Ohio

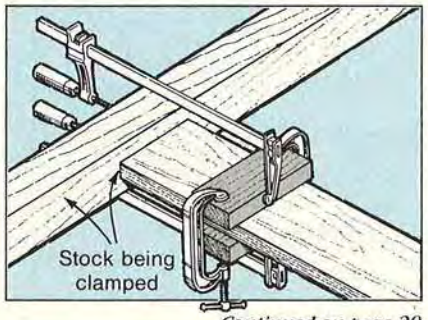


Clamp gets grip on longer work

Every once in a while, you run across a project that calls for a clamp longer than any in your shop. You figure it's time to go buy longer pieces of pipe.

TIP: Instead of running to the plumbing shop, go to your scrap-wood bin. Clamp short pieces of scrapwood across the over-long part as shown *below.* Then, clamp the joint with one jaw pulling against the scrapwood and the other against the opposite side of the joint.

—Jim Morgan, Lafayette, Tenn.



Continued on page 20

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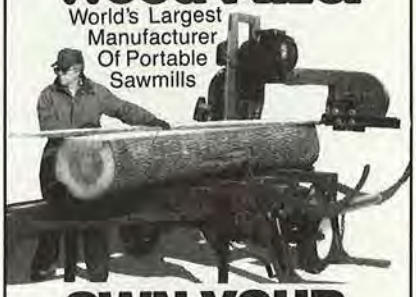

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TIPS FROM YOUR SHOP (AND OURS)

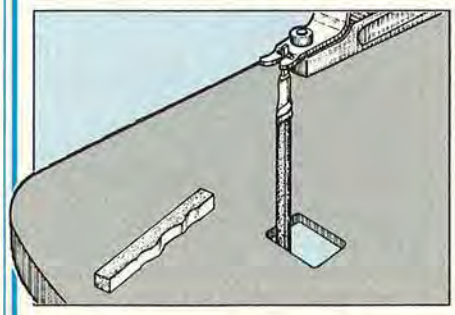
Continued from page 19

Use dull scrollsaw blades to sand difficult areas

Sometimes, you just can't get into a tight curve or follow an irregular edge very well when sanding.

TIP: Grab an old, dull scrollsaw blade and a piece of sandpaper about three-fourths the length of the blade and two inches wide. Wrap it tightly on the blade and secure the ends with thin strips of plastic electrical tape. Use it for hand-sanding or, if you really have some smoothing to do, put it into the scrollsaw and have a power sander for tight places.

—Chris Lyles, Hereford, Texas

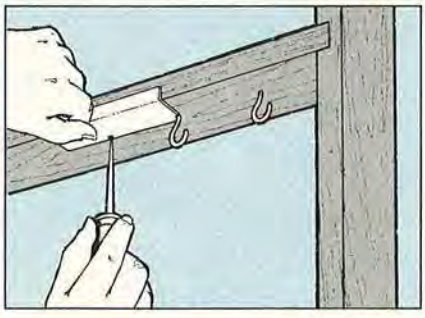


File card sets spacing for hooks in tight spots

You could go crazy spacing cup hooks in hard-to-reach places or where you don't want layout marks on the finished wood.

TIP: Cut a notch in a corner of a file card. Determine the hook spacing and cut another notch that distance from the first one. Then, measure to the shelf edge and fold the card as a depth gauge. Now, slide the card along the shelf to space your hooks.

—Myron Levy, Gold Hill, Ore.

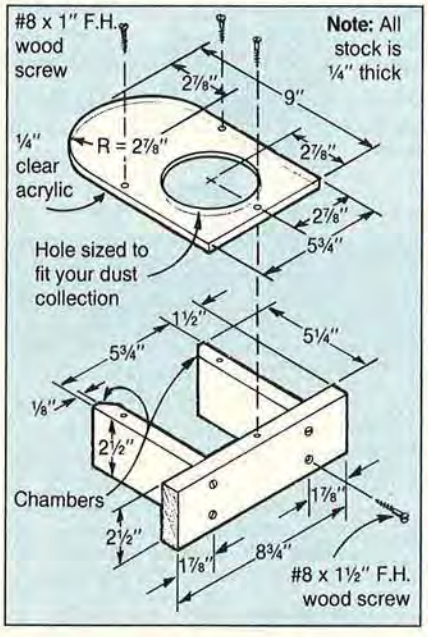


A homemade dust collector for your router table

Few workshop tools kick out mounds of wood chips and airborne dust the way a table-mounted router does. It sure would save you cleanup time if you could collect some of that dust at the router.

TIP: Build the simple dust collector shown *below* from ¼" clear acrylic and ¾" stock. Size the hole to fit your dust-collection hose. Clamp the collector to your router-table fence and plug your dust-collection hose into the hole in the acrylic, as shown on page 44.

—From the WOOD magazine shop



More tips from our woodworking pros

- Make an old table sturdier or strengthen the corner of a new table with our bracing method, shown and described on page 65.
- Reinforce edge-joined boards by adding splines as described on page 65.
- Cut your own thin stock on the tablesaw as shown on page 78.
- Create a simple hidden hinge with a screw, washer, and drop of epoxy, as described on page 76.

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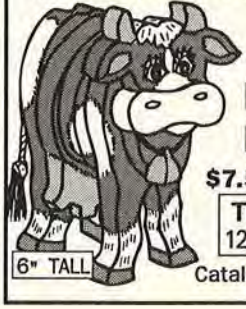
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Specifications:

- Motor: Universal motor w/electronic speed control. 110V, 1.3Amp, sealed ball bearings
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- Blades: accepts pin and plainend
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Lathe Accessories

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Heavy duty, brings Lathe to 40" working height. Size: 28"H X 56"L X 21"W. Wt. 25Lbs.
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How to make wooden adapters for hooking up your dust-collection system

With the endless sizes of piping, hoses, and dust ports available today, you often need a means of fitting together odd-sized pipes and hoses. The answer: wooden doughnuts, such as the one shown on page 44. These allow you to hook a 1" hose into a 3" diameter blast gate. Here's how to make one:

1 Measure the inside diameter of the larger hose or pipe, and the outside diameter of the smaller hose or pipe. Mark a centerpoint on a piece of ¾" scrap stock. With a compass, use the diameter measurements to draw two concentric circles onto the stock.

2 Using a spade bit or circle cutter, cut the inside hole of the doughnut as shown *above left.* ***Note:*** *It pays to test your cuts in scrap stock, and then check for a snug fit with your hoses and pipes.*

3 Cut just outside the outer diameter of the doughnut with your bandsaw as shown *above.* Then, sand back to the line with a disc or belt sander.

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T102B	1/4		1/4	1	7/16	11.00
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T104B	1/4		3/8	1-1/4	5/8	14.00
T105B	1/4		1/2	1-1/2	3/4	16.00
T107B	1/2		1/4	1	7/16	13.00
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T111B	1/2		5/8	1-3/4	7/8	19.00
T112B	1/2		3/4	2	1	20.00
T113B	1/2		1	2-1/2	1-1/4	32.00
T115B	1/2		1-1/4	3	1-1/2	41.00
T200B	1/4	Beading	1/8	3/4	5/16	10.00
T201B	1/4		3/16	7/8	3/8	11.00
T202B	1/4		1/4	1	7/16	11.00
T203B	1/4		5/16	1-1/8	1/2	12.00
T204B	1/4		3/8	1-1/4	5/8	14.00
T205B	1/4		1/2	1-1/2	3/4	16.00
T207B	1/2		1/4	1	7/16	13.00
T210B	1/2		1/2	1-1/2	3/4	16.00
T211B	1/2		5/8	1-3/4	7/8	19.00
T212B	1/2		3/4	2	1-1/4	20.00
T213B	1/2		1	2-1/2	1-1/4	32.00
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T303B	1/2		5/32	1-1/8	15/32	15.00
T304B	1/2		1/4	1-1/2	21/32	16.00
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T902B	1/4		3/8	1-1/4	1/2	12.00
T903B	1/4		1/2	1-1/2	5/8	13.00
T904B	1/2		1/4	1	3/8	11.50
T905B	1/2		3/8	1-1/4	1/2	12.50
T906B	1/2		1/2	1-1/2	5/8	13.50

Item No.	Shk Dia.	Diagram	Radius	Cutting Dia.	Cutting Len.	Price
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T2502B	1/4		1/4	1-1/8	9/16	13.00
T2503B	1/4		5/16	1-1/4	5/8	14.00
T2506B	1/2		1/4	1-1/8	5/8	13.50
T2508B	1/2		3/8	1-3/8	9/16	17.50
T2509B	1/2		1/2	1-5/8	5/8	19.50
TC8B	1/4	Classical	1/8	1-1/8	1/2	18.00
TC8B	1/2		1/8	1-1/8	1/2	18.00
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T7506B	1/2		1/8	1-1/8	1/2	17.00
T7508B	1/4		3/16	1-3/8	5/8	16.00
T7508B	1/2		3/16	1-3/8	5/8	17.00
T1602	1/4	Dovetail	14°	1/2	1/2	5.50
T1604	1/2		7°	3/4	3/4	6.50
T1606	1/2		14°	1	7/8	7.50
T1607	1/2		14°	1/2	1/2	6.00
T401B	1/4	45° Chamfer		1	3/8	11.00
T402B	1/4			1-3/16	1/2	12.00
T403B	1/4,1/2			1-3/8	5/8	12.00
T404B	1/2			1-5/8	3/4	15.00
T406B	1/2			1-7/8	1	17.00
T801	1/4	Half Round		15/16	1/4	13.00
T802	1/4			1-1/16	3/8	14.00
T803	1/4			1-3/16	1/2	15.00
T805	1/4,1/2			1-7/16	3/4	16.00
T806	1/2			1-9/16	7/8	16.00
T807	1/2			1-11/16	1	16.00
T2601	1/4	Keyhole		(Carbide Tipped) 1/4	3/16	7.50

Item No.	Shk Dia.	Diagram	Cutting Dia.	Cutting Len.	Price
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T602	1/4		3/8	3/8	10.00
T603	1/4		1/2	3/8	12.00
T604	1/4		5/8	5/8	13.00
T605	1/2		3/4	5/8	14.00
T607	1/2		1	3/4	17.00
T701	1/4	V Groove	3/8	1/2	8.00
T702	1/4		1/2	1/2	9.00
T704	1/2		3/4	5/8	11.00
T706	1/2		1	3/4	12.00
T1501B	1/4	Slot Cutter	1-1/4	1/8	13.00
T1503B	1/4		1-1/4	1/4	13.00
T1506B	1/4	Rabbet	1-1/4	1/2	11.00
T1512B	1/2		1-1/4	1/2	11.00
T1903	1/4	Round Nose	1/4	5/16	9.00
T1905	1/4		1/2	5/8	12.00
T1911	1/2		3/4	1-1/4	16.00
T1912	1/2		1	1-1/4	18.00
T2001B	1/4	Flush Trim	3/8	1/2	7.00
T2003B	1/4		1/2	1/4	7.00
T2004B	1/4		1/2	1	7.50
T2005B	1/4		1/2	1-1/4	8.50
T2008B	1/2		1/2	1	8.00
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T2103	1/4		3/4	3/4	10.00
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T2211d	1/4		5/8	3/4	6.50
T2212d	1/4		3/4	3/4	7.50
T2214d	1/4		1	3/4	9.00
T2301s	1/2	Double flute	1/4	3/4	7.00
T2303s	1/2		3/8	1	8.00
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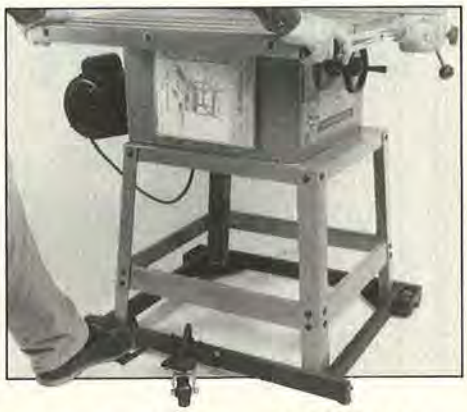
Foot-pedal tool stands have a leg up on the competition



For those of us who work in tight quarters and need to shuffle our stationary equipment around, mobile stands prove to be a true blessing. Now, Delta has a leg up on the competition with a model featuring a convenient foot pedal for lowering and raising one end. This device allows you to rest the tool firmly on the floor for operation, and then move it out of the way for storage.

With competing mobile bases, you must turn two nuts by hand to stabilize the machine for use, and then turn them again to move it.

The stands come in 11 sizes to fit most Delta stationary power tools, as well as some made by other manufacturers. To see if Delta makes a stand for your stationary tools, take the outside measurements of your tools' bases, and then share them with your local dealer.

—Tested by Bill Krier

Delta mobile stands, $94.20 list price at Delta dealers nationwide. Call Delta at 800-438-2486 or 412-963-2400 for the location of a dealer near you.

Dremel's entry into flex-shaft carving tools

Versions of Dremel's high-speed rotary tool have served generations of hobbyists. But, they come with certain limitations. Plainly put, the hand-held models lack the power and handling comfort of the flex-shaft tools.

About 18 months ago, Dremel introduced the 732 heavy-duty flex-shaft tool, powered by a gutsy 1/5-hp motor. The one I tested was the heart of carving kit 7390. Included Handpiece 236 accepts ⅛″ and ¼″ bits. A footswitch sets motor speeds from 0 to 20,000 rpm.

A flex-shaft maintenance kit, high-speed cutters, a bristle brush, dressing stone, drum-sander bands, aluminum oxide stones, tungsten carbide cutter, silicon carbide stone, and two structured-tooth carbide burrs, used for hogging wood, round out the set.

In my tests, the tool performed flawlessly, with first-class construction evident in all of its components. The motor packs plenty of power for every task from carving hardwood to grinding aluminum.

I was especially impressed by the handpiece, which snapped smartly onto the end of the generous 39″ flexible shaft with no alignment problems. I can't say the same for other flex-shaft tools.

You can buy a kit with fewer accessories, or the flex-shaft machine alone.

—Tested by Bob McFarlin

Dremel model 7390 flex-shaft carving kit, about $375 at hobby and hardware stores nationwide. For the nearest dealer, call 414/554-1390.

Cam-action corner clamps are fast, easy, and versatile

This latest entry in the corner-clamp competition replaces the screw-style corner clamp with a cam-pivot clamp that will hold wood of thicknesses ranging from ¼" to 2" thick.

The Toulan 2005 makes quick work of clamping corners in box construction or shelf installation. The handles of the cam-action clamp also offer a unique advantage that sets this clamp type apart. You can use the cams with 3/16" perforated hardboard to hold odd sizes and shapes for carving, finishing, or detail work.

—Tested by Bob McFarlin

Toulan 2005 cam-clamps, $13.95 each, ppd. Ask if introductory offer is still in effect. Mail order only, call 409/838-1386.

Grip-Tite Correction

We momentarily lost our grip in reviewing the Grip-Tite magnetic feather board (by Mesa Vista's Designs) in Products That Perform, April 1991. The price of the feather board has increased to $29.95. We also transposed Mesa Vista's telephone number, which is 505/892-0293.

Continued on page 27

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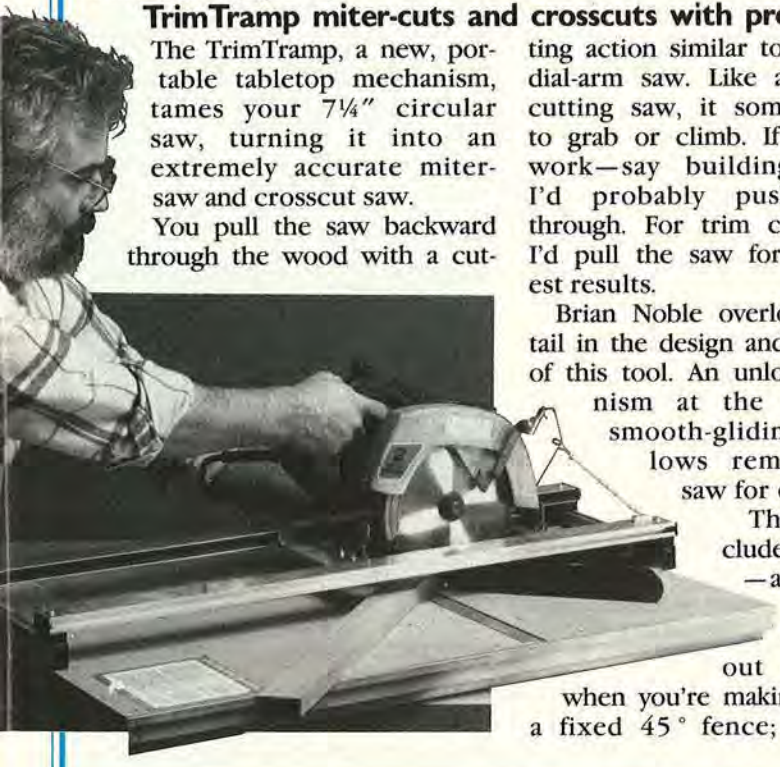
PRODUCTS THAT PERFORM

Continued from page 25

TrimTramp miter-cuts and crosscuts with precision



The TrimTramp, a new, portable tabletop mechanism, tames your 7¼" circular saw, turning it into an extremely accurate miter-saw and crosscut saw.

You pull the saw backward through the wood with a cutting action similar to that of a radial-arm saw. Like any backward cutting saw, it sometimes tends to grab or climb. If doing rough work—say building a deck—I'd probably push the saw through. For trim cuts, however, I'd pull the saw for the smoothest results.

Brian Noble overlooked no detail in the design and construction of this tool. An unlocking mechanism at the end of the smooth-gliding rails allows removal of the saw for other uses.

The table includes three stops—a 90° crosscut fence that cleverly flips out of the way when you're making angle cuts; a fixed 45° fence; and a locking miter fence, which is adjustable through 135°.

The TrimTramp crosscuts and miter-cuts stock as thick as 1 9/16" and crosscuts stock 16" wide—19" if you flip the board. By setting your blade depth, you can fashion dadoes by making repeated cuts, moving your stock a kerf's width each time. You can't do this with other mitersaws I've seen. Angle your saw and you can make bevel-cuts and compound miter-cuts.

Accuracy relies on perfect saw alignment and installation, which proved harder and took longer than I wished, but still is achievable by the average woodworker.

—Tested by Bob McFarlin

TrimTramp, $149.95 ppd., from TrimTramp Ltd., P.O. Box 740, Buffalo, NY 14213, or call to order, 800-267-8776.

Continued on page 28

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PRODUCTS THAT PERFORM

Continued from page 27

Seat 35mm Euro hinges with Freud's affordable bit

This Freud boring bit, which simplifies Euro-style hinge installation, has three things going for it. First, its metric diameter allows you to drill to the precise size (35mm) needed for European hinges. Second, the price falls within the "reasonable" range. And, finally, it delivers a quality hole time after time, requiring only minor touch-up.

I tested it on ¾" oak-veneer plywood while using a drill-press speed of 750 rpm. Accurate boring was effortless thanks to the bit's centerpoint.

A professional woodworker couldn't ask for more.

—Tested by Bob McFarlin

List price is $24.90. For the location of your nearest dealer, call 919/434-3171.

Leichtung's new hold-down takes the kick out of ripping

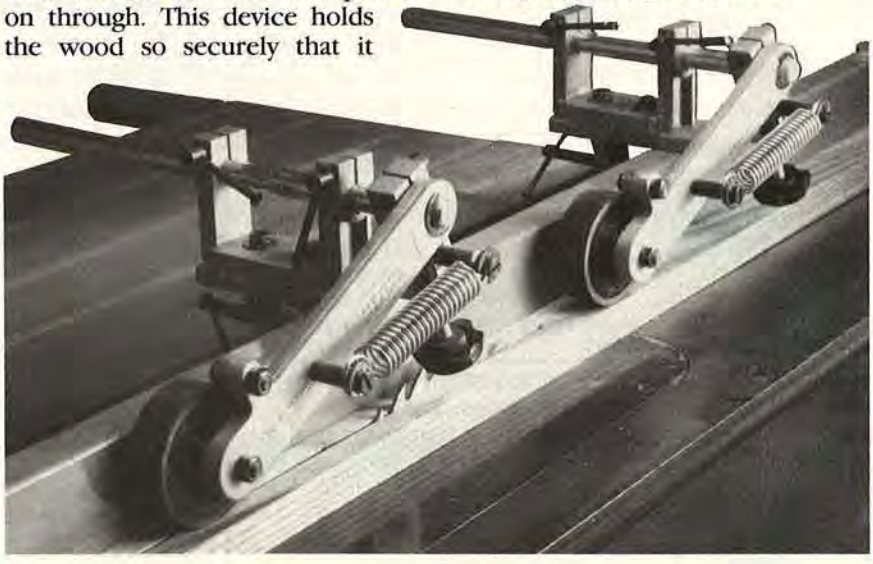
The Leichtung antikickback hold-down works as advertised, employing a two-piece device that clamps firmly to the rip fence of your tablesaw.

I turned the spring-loaded infeed roller (the one closer to the saw front) 5° toward the fence so that it held the stock down and against the fence. I left the outfeed roller parallel to the fence.

No need for a pushstick, because you can feed the stock in and then walk around the saw and pull it on through. This device holds the wood so securely that it doesn't burn while you walk around the saw. Not only does this attachment make your sawing operation safer, it's more accurate, too. From now on, I won't rip without it.

—Tested by Jim Downing

Antikickback hold-downs, catalog no. 96974, $49.99 plus $5.95 shipping and handling. From Leichtung Workshops, 4944 Commerce Parkway, Cleveland, OH 44128. Call 800-321-6840.



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CUTTER	TOOL #	CUT DIA.	CUT L.	SNK D.	PRICE
Straight	ST206	1/4	3/4	1/4	5.50
	ST208	5/16	3/4	1/4	5.50
	ST210	3/8	1	1/4	5.50
	ST213	1/2	1	1/4	5.50
	ST216	5/8	1	1/4	6.25
	ST219	3/4	3/4	1/4	8.95
	ST406	1/4	3/4	1/2	5.50
	ST408	5/16	1	1/2	5.50
	ST410	3/8	1	1/2	5.50
	ST413	1/2	1	1/2	5.50
	ST413L	1/2	1-3/16	1/2	6.95
	ST413E	1/2	2*	1/2	13.95
	ST416	5/8	1-3/16	1/2	7.50
	ST419	3/4	1-3/16	1/2	8.95
	ST422	7/8	1-3/16	1/2	10.50
	ST425	1	1-3/16	1/2	10.95
Flush Trim	FT210P	3/8	1/2	1/4	6.00
	FT210	3/8	1	1/4	6.50
	FT213	1/2	1	1/4	6.95
	FT213L	1/2	1-1/2	1/4	10.50
	FT410	3/8	1-3/16	1/2	6.50
	FT413	1/2	1-3/16	1/2	6.95
	FT413L	1/2	1-1/2	1/2	10.50
Dovetail	DV210	3/8	3/8	1/4	4.95
	DV213	1/2	1/2	1/4	4.95
	DV410	3/8	3/8	1/2	4.95
	DV413	1/2	1/2	1/2	4.95
	DV416	5/8	3/4	1/2	6.50
	DV419	3/4	1	1/2	6.95
	DV425	1	7/8	1/2	8.95
Core Box	CB206	1/4	1/4	1/4	8.00
	CB210	3/8	1/4	1/4	9.00
	CB213	1/2	5/16	1/4	11.00
	CB216	5/8	3/8	1/4	12.50
	CB219	3/4	1/2	1/4	14.00
	CB413	1/2	5/16	1/2	11.00
	CB416	5/8	3/8	1/2	12.50
	CB419	3/4	1/2	1/2	14.00
	CB422	7/8	5/8	1/2	16.95
	CB425	1	5/8	1/2	17.95
	CB432	1-1/4	3/4	1/2	25.95
	CB438	1-1/2	7/8	1/2	28.95
45° Chamfer	CH210	1	3/8	1/4	12.00
	CH213	1-3/16	1/2	1/4	12.00
	CH216	1-3/8	5/8	1/4	13.50
	CH416	1-3/8	5/8	1/2	14.00
	CH419	1-5/8	3/4	1/2	16.00
	CH422	1-7/8	7/8	1/2	19.00
	CH425	2-1/8	1	1/2	24.00
Rabbet 2 SIDED	RB232	1-1/4	1/2	1/4	12.00
	RB432	1-1/4	1/2	1/2	12.00
	SL203-2	1-1/4	1/8	1/4	10.00
	SL205-2	1-1/4	3/16	1/4	11.00
	SL206-2	1-1/4	1/4	1/4	11.00
	SL210-2	1-1/4	3/8	1/4	12.00

	TOOL #	RADIU	CUT L.	SNK D.	PRICE
Rounding Over	CR201	1/16	3/8	1/4	10.00
	CR203	1/8	3/8	1/4	10.00
	CR205	3/16	7/16	1/4	10.00
	CR206	1/4	2/1	1/4	11.00
	CR208	5/16	9/16	1/4	12.95
	CR210	3/8	5/8	1/4	14.00
	CR213	1/2	3/4	1/4	16.00
	CR406	1/4	1/2	1/2	11.95
	CR410	3/8	5/8	1/2	14.00
	CR413	1/2	3/4	1/2	16.00
	CR416	5/8	7/8	1/2	19.00
	CR419	3/4	1	1/2	20.00
	CR425	1/2	1-1/4	1/2	32.50
	CR432	1-1/4	1-3/4	1/2	42.95
Roman Ogee	RO204	5/32	1/2	1/4	15.00
	RO206	1/4	3/4	1/4	16.00
	RO404	5/32	1/2	1/2	15.00
	RO406	1/4	3/4	1/2	16.00
Cove	CV203	1/8	3/8	1/4	11.00
	CV205	3/16	7/16	1/4	11.00
	CV206	1/4	1/2	1/4	11.00
	CV208	5/16	1/2	1/4	12.00
	CV210	3/8	1/2	1/4	12.00
	CV213	1/2	5/8	1/4	13.00
	CV406	1/4	1/2	1/2	12.00
	CV410	3/8	1/2	1/2	12.50
	CV413	1/2	1/2	1/2	13.50
	CV419	3/4	7/8	1/2	27.00
Classical	CS203	1/8	5/8	1/4	18.00
	CS206	1/4	7/8	1/4	19.00
	CS403	1/8	5/8	1/2	18.00
	CS406	1/4	7/8	1/2	19.00
HALF ROUND	HR203	1/4 D	5/8	1/4	12.50
	HR205	3/8 D	11/16	1/4	13.50
	HR206	1/2 D	3/4	1/4	14.50
	HR208	5/8 D	1	1/4	16.00
	HR210	3/4 D	1-1/8	1/4	16.00
	HR410	3/4 D	1-1/8	1/2	17.00
	HR413	1 D	1-3/8	1/2	18.00
	HR416	1-1/4 D	1-5/8	1/2	35.00
	HR419	1-1/2 D	1-7/8	1/2	40.00

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TOOL #	CUTTING DIA.
HB419	3/4"
HB422	7/8"
HB425	1
HB432	1-1/4"
HB435	1-3/8"
HB444	1-3/4"
HB454	2-1/8"

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SL403	1/8"	1/2"	$16
SL204	5/32"	1/4"	$17
SL404	5/32"	1/2"	$17
SL205	3/16"	1/4"	$18
SL405	3/16"	1/2"	$18
SL206	1/4"	1/4"	$20
SL406	1/4"	1/2"	$20

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VERTICAL PANEL RAISING C901 $32
DRAWER JOINT C933 $30
REVERSIBLE STILE & RAIL C965 $45
GLUE JOINT C911 $32

STRAIGHT

1/4	C918	$23
3/8	C953	$25
1/2	C954	$27
3/4	C912	$29
1	C955	$32
1 1/2	C956	$39

BEAD

1/4	C973	$28
3/8	C974	$30
1/2	C925	$32
3/4	C927	$35
1	C929	$39

FLUTE

1/4	C971	$26
3/8	C972	$29
1/2	C926	$32
3/4	C928	$34
1	C930	$37

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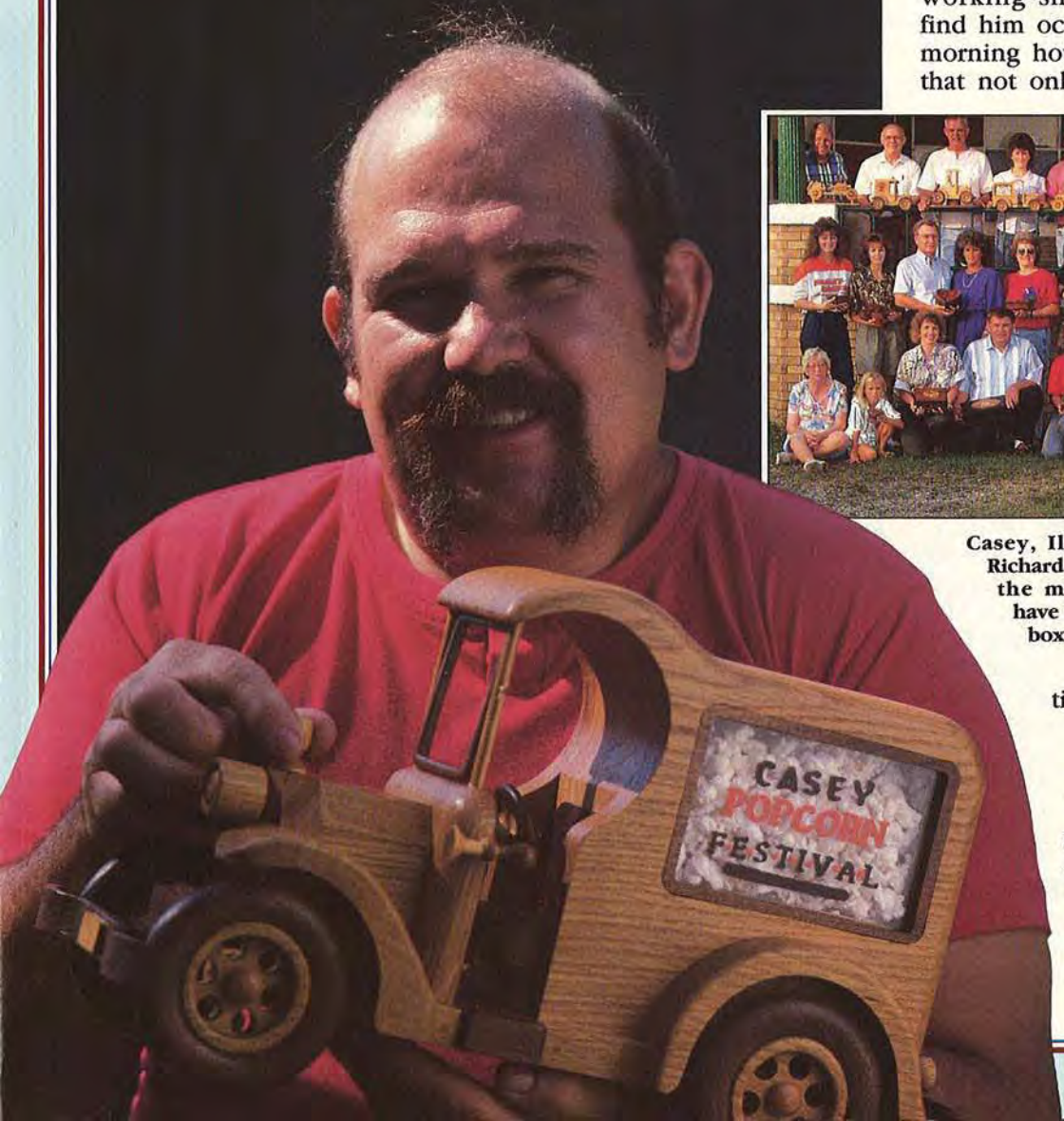
Woodworker Richard Gard deserves to wear a good guy's white hat because in Casey, Illinois, his donated projects lift spirits and help worthy causes.

MR. MUSIC BOX



Print this article

At *WOOD*® magazine, we're always tickled when we hear about woodworkers doing good deeds. Like heroes and heroines of the silver screen, these craftspeople wear the white hats.

Reader Bernie Morgan wrote us about a woodworking friend who helps out lots of people in Casey, a south-central Illinois farming community. We followed up on his tip, and found Richard Gard delightful. And, he sure has found a way to make folks happy—with the sound of music.

That's because when Richard locks up his auto-body repair service in Casey, he heads home to open another door—to his woodworking shop. There, you can find him occupied until the wee morning hours, building projects that not only bring him satisfaction, but spread joy.

Casey, Illinois' Mr. Music Box, Richard Gard, along with some of the many townspeople who have benefited from his music box donations.

Richard, you see, has a fascination with music boxes. Created in a host of shapes—including cars, trucks, bears, and jewelry boxes—his tinkling wooden treasures put smiles on people's faces.

Continued

MR. MUSIC BOX

Oak Model-A pickup plays "Memories."

Walnut and catalpa Honey Bear

And, over the last five years, his musical masterpieces have generated about $7,000 for local charities' fund-raising activities.

He spreads smiles

"Music boxes are special," Richard explains. "They have a magical quality about them that makes people forget about their troubles and be happy. Whenever someone hears a music box for the first time, there's a long silence, then they smile. For most people, I guess, the sound reminds them of a pleasant time."

The brawny auto-body-man-turned-woodworker has built a lot of music boxes since the time seven years ago when he spotted one in a jewelry store. "It was real expensive," he remembers, "so, I decided to learn how to make one. And that's how I got hooked—on music boxes and woodworking."

Richard is convinced that everyone should have the pleasure of a music box, even men who might think them less than macho. That's why his creations often look quite unconventional.

"Most men probably wouldn't buy one if it looked like a music box," he says. "But, if I put the movement in something more masculine—such as a car or truck—they identify with it."

That's one reason why Richard's unusual music boxes fetch big bucks at fund-raisers. For instance, at the auction to benefit the Shriner's Children's Hospital Burn Center in St. Louis last Fourth of July, his rendition of a Ford Model-A pickup truck that plays "Memories" brought $500.

Around Casey, though, you don't have to shell out cash to enjoy one of Richard's tuneful whimsies. If you're in need, you'll no doubt get one.

A loaner to lift spirits

"When I first started making music boxes, I wasn't overwhelmed with how they were turning out," Richard recalls. "To improve them, I had to keep building. But, I didn't want to have them all sitting around, so, I gave them to some people I knew well."

Because Richard knows just about everyone in Casey (pop. 3,000), and what's happening, his giveaways became a no-end situation. "The more I gave away, the more in touch I got with the needs of people," he says. "Finally, I felt I could make music boxes 24 hours a day and still not be able to make everyone happy. Then I thought of The Loaner."

The Loaner has circulated for five years now. It's a basic, durable music box of cherry that plays "Brahm's Lullabye."

"Each person keeps it two weeks," Richard says. "I tell them it's to use, not just for decoration. That way, they enjoy it. And, when I give it to them, I ask who should get it next."

Accompanying The Loaner is a log book, where recipients write in their names and record any comments they want to make. Richard likes to page through the book when it returns. His chance to smile comes with notations like this: *"We may all have a friend in Jesus, but it makes me feel good to know that I have one right here in Casey."*

Experimenting with the sound of music

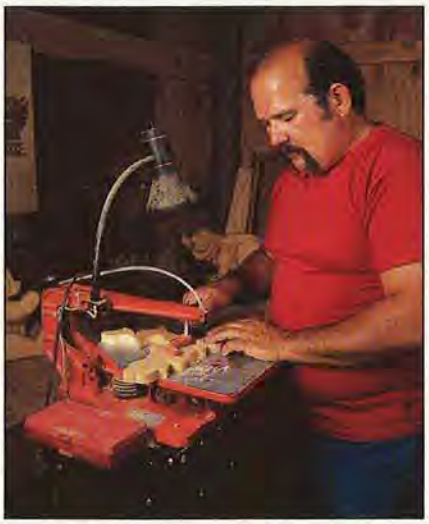
There may be magic in a music box, but Richard has discovered that behind every one there must be experimentation, too. But after 100 or so efforts, he's developed a few guidelines for great sound.

"To begin with, I primarily use mechanical—rather than electronic—movements because they have a clearer sound," Richard says. "And an 18-note movement is the smallest I'll install."

Japanese and Swiss manufacturers produce mechanical music-box movements in 12-, 14-, 18-, 36-, 50-, 72-, and 144-note capabilities. "The higher the number, the better the sound," Richard explains. "At the 144-note end of the range, 72 notes play the melody and 72 notes play the harmony. The result is incredible, but so is the cost—about $1,500."

After deciding on the movement, Richard selects the style, based on what he wants the music box to look like. "If the movement won't be exposed, I'll use a plastic-covered one," he comments. "If the movement will be visible, I'll insert an open one. They're better looking."

Next, Richard plans how to emphasize the tone. "An inexpensive 18-note movement, on a thin sounding board, will have a high,



Richard burns the midnight oil in his workshop, building music boxes. Here, a bear takes shape.

A small Teddy bear adorns The Loaner.

This cherry music box displays a Swiss-made movement.

rattling sound," says the music-box maker. "By using thicker wood for the sound chamber, or by setting the movement deeper, you mellow the tinny sound.

"When it comes to the wood," he adds, "I've found that hardwoods produce a much better sound than softwoods. I get a nice crisp sound with woods like cocobolo, rosewood, or wenge."

Richard has come up with some dos and don'ts, too. "Always put a dust cover over an open movement," he advises. "Also, never, never, never finish a music box with lacquer if you plan to install a 72-note or better movement. The lacquer vapors eventually break down the lubricating oil. For boxes like that, I apply a paste varnish."

What the world needs now

Richard says there's no limit to music-box design. "With an extended arm for the windup key, I can see an airplane music box. You'd wind it up with the propeller, then the prop would spin as it played," he explains. In fact, Richard gets so gleeful talking music boxes, it's certain that the lights in his workshop will burn for years to come. After all, there's no end to the possibilities.

How to contact Mr. Music Box
Write Richard Gard at *Rural Route No. 2, Box 143A, Casey, IL 62420.*

A music box from the HEART

Richard Gard designed this easy-to-build jewelry/music box just so you, too, can make someone happy. To order the movement, check out our Buying Guide.

When this issue's featured craftsman, woodworker Richard Gard, mentioned to us that he'd like to see more people build music boxes because they're so much fun, we said, "Then design one for *WOOD*® magazine." So, a few weeks later, Richard brought us this walnut music box that plays "Memories" when you lift the lid. And, you'll find that it goes together like a breeze.

Step 1. Cut the parts to initial size

You'll need walnut stock for the body, bottom, and lid, as listed in the Bill of Materials. To get the 1½"-thick material for the body (A), glue together two pieces of ¾" stock, clamp, and let dry.

Cut the parts for the top (C) and the bottom (B) from ¾" stock. See the Exploded-View drawing for referencing parts.

Step 2. Saw the parts to shape

Trace the heart pattern onto parts A, B, and C. (Refer to pattern notes, because you won't need the complete pattern for each part.) Then, saw around the perimeter of the pattern, cutting all three pieces to shape.

Now, take the box body (A) and mark the location of the 9/64" hole for the brass on/off extension pin where shown on the pattern. Drill into the top edge of the box body (A). Then, using the hole as your guide, flip the box body over and drill a ¼" hole ¾" deep into the bottom edge.

Next, drill a ⅛" start hole where shown. Saw out the jewelry compartment, being careful to keep the sawed-out center intact and unmarred—you'll need it to form the lid bottom (D). Bore out the area to house the music movement with a 3" Forstner-type bit.

To obtain the ¼" material for part D, retrieve the center cutout and bandsaw it to ¼" thickness.

Step 3. Prepare for the movement

Glue the bottom (B) to the box body (A) and clamp. Then, make a copy of the detailed circular pat-

Continued

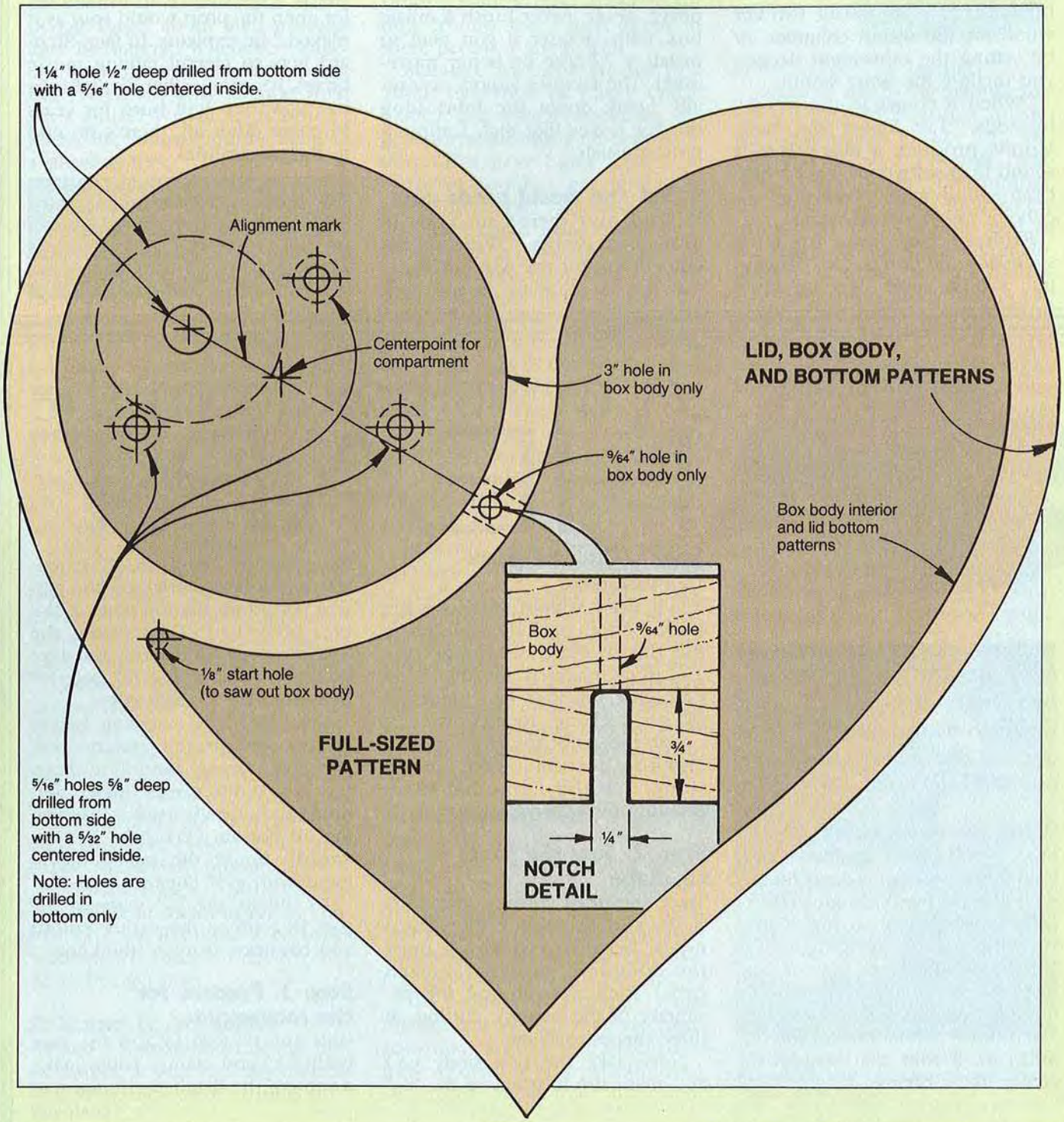
MR. MUSIC BOX

tern for the music movement opening and cut it out. Now, place it inside the 3" music movement opening—lining up the cut-out pattern's alignment marks with the on/off lever notch.

Mark the hole locations for the hold-down screws and the movement key with a scratch awl inside the movement opening. Remove the pattern and drill the needed 5/32" and 5/16" inside holes. Now, turn the box body over and complete drilling the holes to the widths and depths indicated on the pattern.

Step 4. Assemble the box

First, rout a 1/2" roundover around the edge of the box bottom and the top edge of the lid. Then, align the lid bottom (D) on the underside of the lid, as shown in the drawing, *far right,* glue it in place, clamp, and set aside.

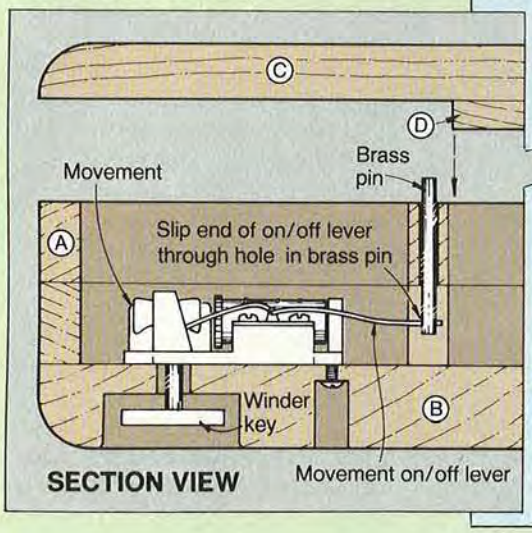

1¼" hole ½" deep drilled from bottom side with a 5/16" hole centered inside.
Alignment mark
Centerpoint for compartment
3" hole in box body only
9/64" hole in box body only
LID, BOX BODY, AND BOTTOM PATTERNS
Box body interior and lid bottom patterns
Box body
9/64" hole
3/4"
1/4"
NOTCH DETAIL
1/8" start hole (to saw out box body)
FULL-SIZED PATTERN
5/16" holes 5/8" deep drilled from bottom side with a 5/32" hole centered inside.
Note: Holes are drilled in bottom only

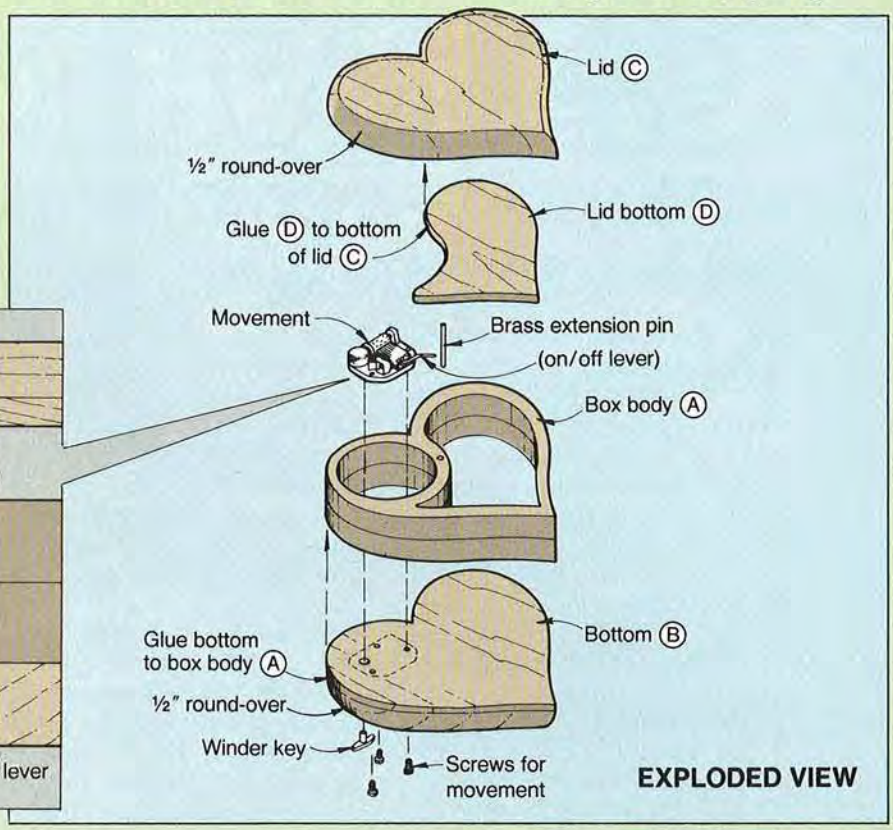
At this time, sand and finish the box and lid, being sure to create a chamfered edge on the hole for the key. This protects fingers when winding.

When the finish dries, insert the movement in the opening, making sure the on/off lever centers in the notch containing the brass pin, as shown in the Section View. Place the brass pin in the hole and couple it with the on/off lever and fasten the movement in place with the screws provided. Next, attach the key.

Step 5. Add the lining

Refer to the instructions in the Box Lining drawing to line your box with velveteen fabric. Then, to complete your project, add the 3"-diameter, circular glass dust cover (see the Buying Guide) over the movement. It should fit in the recess tightly enough without having to do any gluing.





Buying Guide

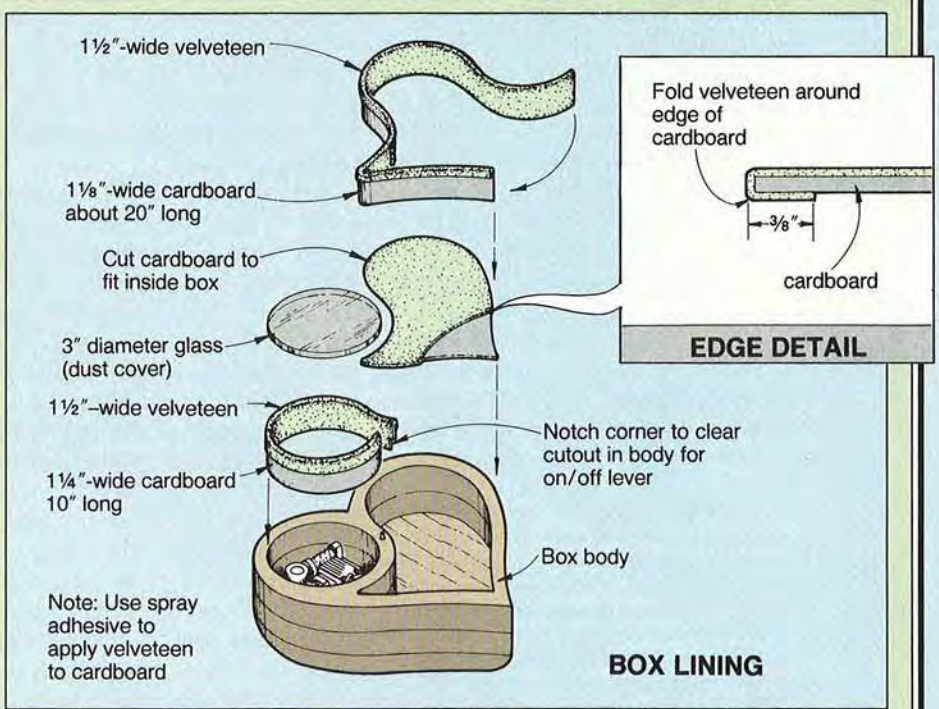
• **Reuge 18-note music movement (plays "Memories"), brass extension pin, 3"-diameter 3/32" glass dust cover,** the entire kit, no. 71063, $15 (U.S.) ppd., from: Klockit, P.O. Box 636, Lake Geneva, WI 53147.

Bill of Materials

Part	Finished Size			Matl.	Qty.
	T	W	L		
A*	1½"	8"	8"	W	1
B	¾"	8"	8"	W	1
C	¾"	8"	8"	W	1
D	¼"	6"	6"	W	1

*Laminated to thickness

Material Key: W-walnut
Supplies: Yellow woodworker's glue, cardboard, velveteen, finish.


1½"-wide velveteen
1⅛"-wide cardboard about 20" long
Cut cardboard to fit inside box
3" diameter glass (dust cover)
1½"–wide velveteen
1¼"-wide cardboard 10" long
Notch corner to clear cutout in body for on/off lever
Box body
Note: Use spray adhesive to apply velveteen to cardboard
BOX LINING
Fold velveteen around edge of cardboard
⅜"
cardboard
EDGE DETAIL

Project Design: Richard Gard. Illustrations: Bill Zaun. Photograph: John Hetherington

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NORTHWEST COAST INDIAN CARVING

A SAMPLING OF THE BOLD WOODEN LEGACY FROM ONE OF NORTH AMERICA'S MOST FASCINATING PEOPLE

Northwest Coast defines a distinct geographical area of North America that roughly extends 1,200 miles from Yakutat Bay northwest of Sitka, Alaska, to the Columbia River in Washington state. The native people of the Northwest Coast, from the Tlingit and Tahltan in the far north to the Coast Salish in the south (see map, *right*), shared a life enjoyed by no other.

The area where they lived, with few exceptions, was limited to the narrow coastline where forests met the sea. Warmed by the Japanese Current, the area included lush rain forests. The waters produced seafood in abundance—halibut, salmon, clams, and mussels. There were sea lions and whales, too. Ducks and geese also migrated through the area. And wild berries proliferated.

With their daily necessities so easily attainable, the Northwest Coast tribes developed a leisurely culture rich in mythology and ceremony. Only the Aztecs surpassed it in North America.

The people of the Northwest Coast also were unequaled as practical woodworkers. But, it was the demand for ceremonial objects and possessions to reflect tribal stature that resulted in skilled artisans—gifted carvers of wooden masks, totems, screens, boxes, furniture, and other artifacts.

◀ From top to bottom on this Tsimshian ceremonial staff you'll find a whale, a human, a beaver, a bird, another human, a second beaver, and a whale holding a human figure. Staffs such as this were held by the ceremonial orator. He relinquished the staff only when someone wishing to address the assemblage reached for it. Circa 1895.

Prestigious symbols

In the society of the Northwest Coast, wealth and prestige were obtained not only by accumulating items of real value, such as canoes, blankets, furniture, and ceremonial trappings like masks, but those without intrinsic value, too. The ownership of specific songs, dances, and symbols contributed equally to status, since these were considered private property.

All the Northwest Coast tribes, and the local groups within them, believed in and identified with myths concerning their origin. One Kwakiutl village group, for instance, claim the thunderbird and halibut as their ancestors. As a result, all their descendants have the right to display the thunderbird and halibut as their "family" crests on totem poles, houseposts, and other items.

Inheritances thus had value. But, there were other ways to obtain this passed-down wealth. When a male married, for instance, he gained his wife's privileges. Another means was the *potlatch*.

For example, if a chief wished to claim the crests of a deceased relative, he invited guests to a feast or potlatch. At the event, he erected a totem pole with the deceased's crests carved on it—those which he was now claiming. By accepting the food and gifts, the guests validated his claim.

The origins of decoration

Among the Northwest Coast Indians, even the most ordinary objects were decorated. Spoons, canoe paddles, staffs, and clubs received the same artistic attention as ceremonial masks, totem poles, and other large carved objects.

Animal, bird, and fish images reflected the peoples' origin myths as well as the creatures of the supernatural worlds of sea, sky, and forest that they believed existed. In addition, their carvings carry bold figures of real animals important to their life. But, their designs also reflect a human side that interprets ancestry or legendary people.

Carvings have similarities

The work of Northwest Coast artisans varies from tribe to tribe, yet has similarities. Haida and Tlingit carvings tend to be less ornate or colorful than those of the Kwakiutl or Coast Salish, but have common, recognizable symbols.

▲ Depicting the likeness of spirits, masks such as this were worn at the dances that preceded potlatches. Guests would attempt to identify the spirit. Made of wood, fur, and copper, this Tsimshian mask has eyes that open and close. Circa 1900.

Northwest Coast carvers used the wood around them—western red cedar, yellow cedar, hemlock, yew, maple, and alder. But, they also turned to other materials, such as soft stone.

Before contact with the white man, pigments for paint came from natural sources. They mixed salmon-egg oil with lignite, iron ore, and copper to get colors.

Tourist curios

The Northwest Coast carving culture had flourished before European contact, but it took off in the 18th century when explorers introduced iron tools. Demand for souvenirs was also responsible, and curios became abundant.

However, when British Columbia joined Canada in 1871, officials and missionaries restricted native customs, and aspects of the culture declined. Carving especially suffered because it expressed many of the old practices. Thankfully, some artists passed on their skills.

Continued

INDIAN CARVING

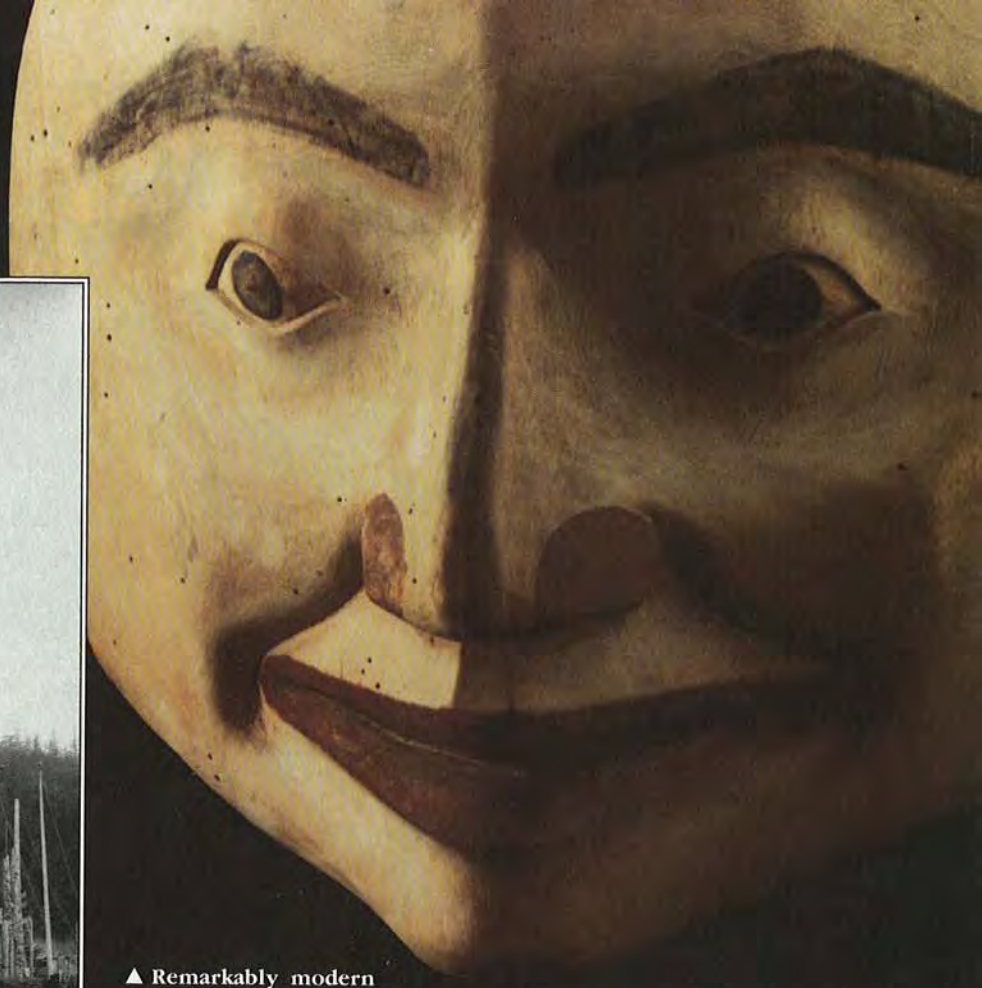
Elaborately carved ▶ and painted rattles of wood and cedar bark were held by attendants in the Southern Kwakiutl Cannibal Society's *hamatsa* dance. The sound of rattles calms hamatsa, the wild spirit, and prevents him from biting people. Made before 1914, this example depicts a mountain hawk, an unusual subject.

▼ Highly decorated Haida food bowls of this type would have been reserved for use by or as gifts to guests at a potlatch ceremony. Note its rounded sides and shell insets along the rim. Circa 1850.

▲ Carved canoe models were sold as curios to visitors or museums. Sales were an untraditional source of wealth, but helped carving proliferate. This is a Westcoast type, date is unknown.

To find out more about Northwest Coast carving, read *The Legacy, Tradition and Innovation in Northwest Coast Indian Art,* 1984, the University of Washington Press, Seattle.

▲ Family crests and symbols adorn totem poles lining the shore in this 1884 photograph taken by Richard Maynard at Skidegate, Queen Charlotte Island, B. C. Such displays denoted wealth.



▲ Remarkably modern in appearance, this Tsimshian mask had its place in the ceremonial dramas held in the dance house. Perhaps representing an ancestor, it most likely wasn't worn, but was instead hung as a prop. Circa 1908.

▼ A Haida carved bowl in which soapberries were mixed with water, then whipped to a froth for a confection called *soopallalie.* Note eagle face on left and whale image on right. Circa 1893.

Written by
Peter J. Stephano
Graphic design:
Perry A. McFarlin
Photographs courtesy of the
Royal British Columbia
Museum, Victoria, B.C.

A SIMPLE, AFFORDABLE SYSTEM FOR KEEPING YOUR SHOP CLEAN

CENTRAL

Hardly a week goes by when I don't receive a reader letter about dust collection. And, it's easy to understand why. Public awareness of the harmful effects of airborne wood dust has grown steadily in recent years. But, what can you do to effectively solve your never-ending dust problem?

With that question in mind, Jim Downing, *WOOD®* magazine's design editor, and I sat down to plan a full-service central dust-collection system. Then, we built the system in my home shop to test out our ideas.

For affordability, safety, and convenience, we decided (1) to use PVC pipe for the main ductwork, (2) to completely ground the piping to prevent buildup of static electricity, and (3) to wire convenient remote switches near major dust-producing machines for instant, on-the-spot suction.

After having ironed out a few bugs, Jim and I feel confident that we have come up with an efficient, hard-working system.

Bill Krier

Products and Techniques Editor

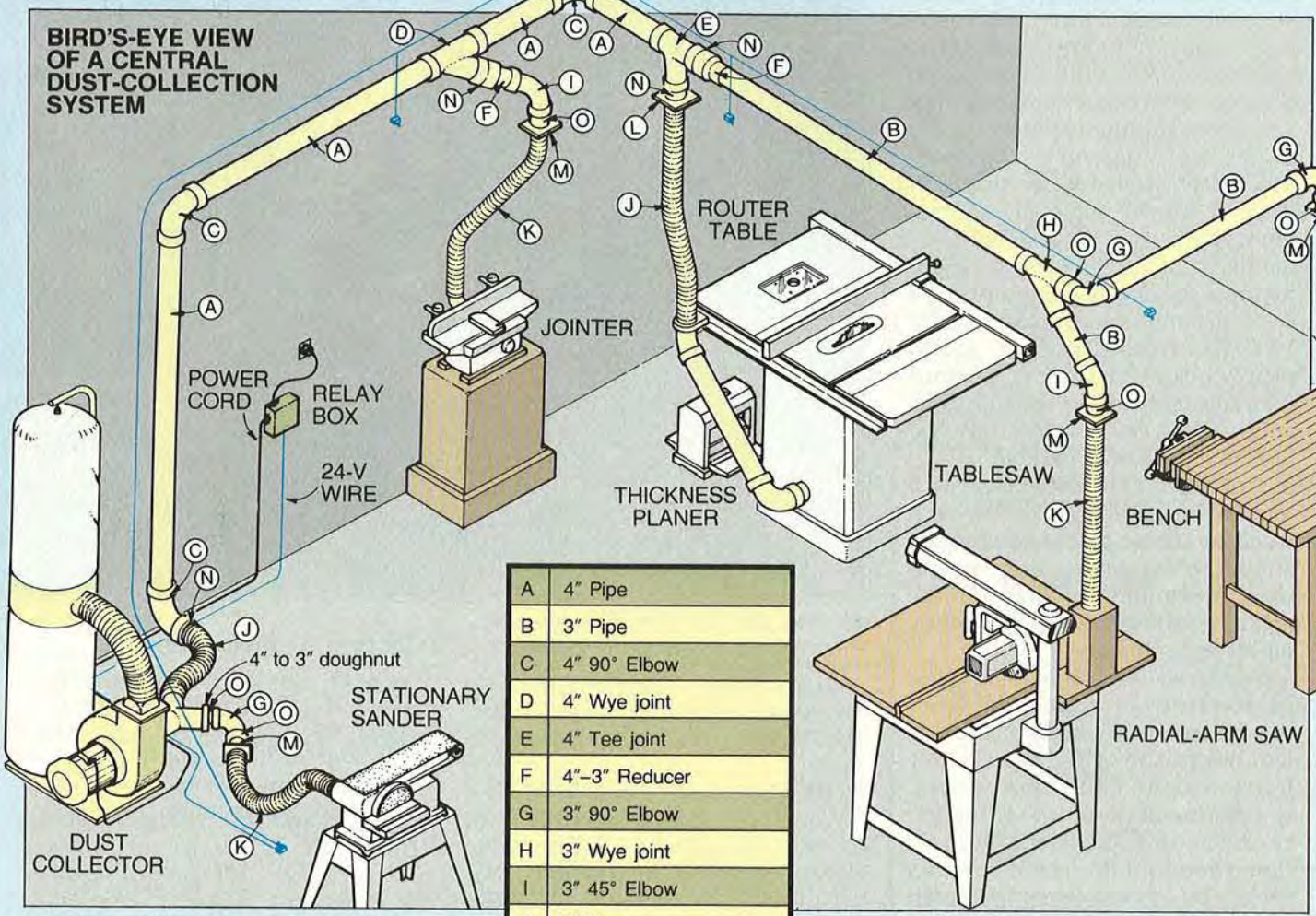
Planning your system

To get started, sit down with a piece of paper and lay out the perimeter of your shop and the locations of your woodworking machines. Then, plan your dust-collection system with these points in mind:

- Locate your dust collector near machines that produce large chips, such as a thickness planer or router table. By doing this, you reduce the chances of these large chips clogging the ductwork. As you can see by the layout of my shop, *opposite page,* I located the dust collector in a corner and out of my way, but fairly close to both my jointer and to the single hose that serves the tablesaw, thickness planer, and router table. I placed my belt/disc sander near the collector only because that's the most convenient spot for it.
- Run 4"-diameter pipe to major chip producers, and then reduce the pipe diameter to 3" when you start a run to a radial-arm saw or sanding machines.
- Keep the pipe run as short as possible, and the number of elbows and other joints to a minimum. Why? Every foot of pipe lessens air flow, and every elbow reduces efficiency as much as 10' of pipe would. Jim and I hung the main ductwork from joists with pipe straps.
- Position your wye and tee joints for smooth air flow as shown, *opposite page.*

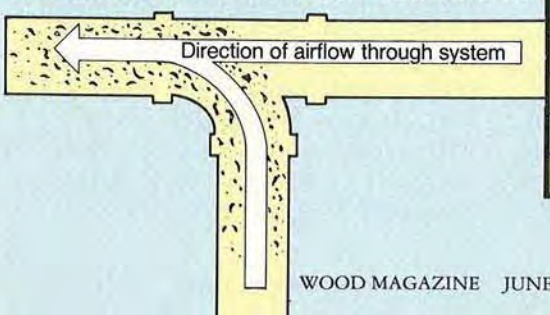
Print this article

DUST COLLECTION

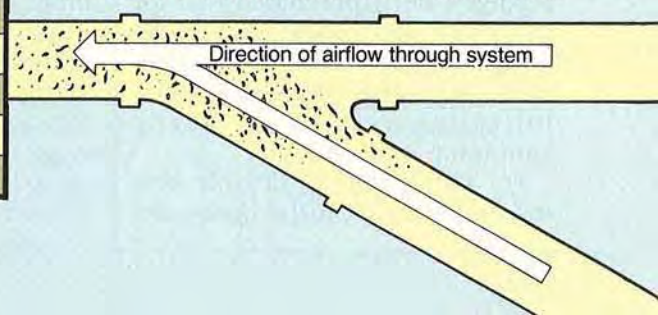


A	4" Pipe
B	3" Pipe
C	4" 90° Elbow
D	4" Wye joint
E	4" Tee joint
F	4"–3" Reducer
G	3" 90° Elbow
H	3" Wye joint
I	3" 45° Elbow
J	4" Hose
K	3" Hose
L	4" Blast gate
M	3" Blast gate
N	Short 4" pipe
O	Short 3" pipe

CORRECT POSITIONING OF TEE JOINTS



CORRECT POSITIONING OF WYE JOINTS



DUST COLLECTION

Choosing your ductwork components

We chose rigid PVC sewer-and-drain pipe for our ductwork because of its low price (less than $4 for 10′ lengths in 3″ and 4″ diameters). This piping has smooth walls for efficient air movement, and accepts radiused tee and wye joints that also aid the smooth flow of air. When you ask for this piping at your local hardware store, don't buy the thicker-walled Schedule 40 PVC pipe. This material weighs more and costs about twice as much while offering no dust-collection advantages over the sewer-and-drain pipe.

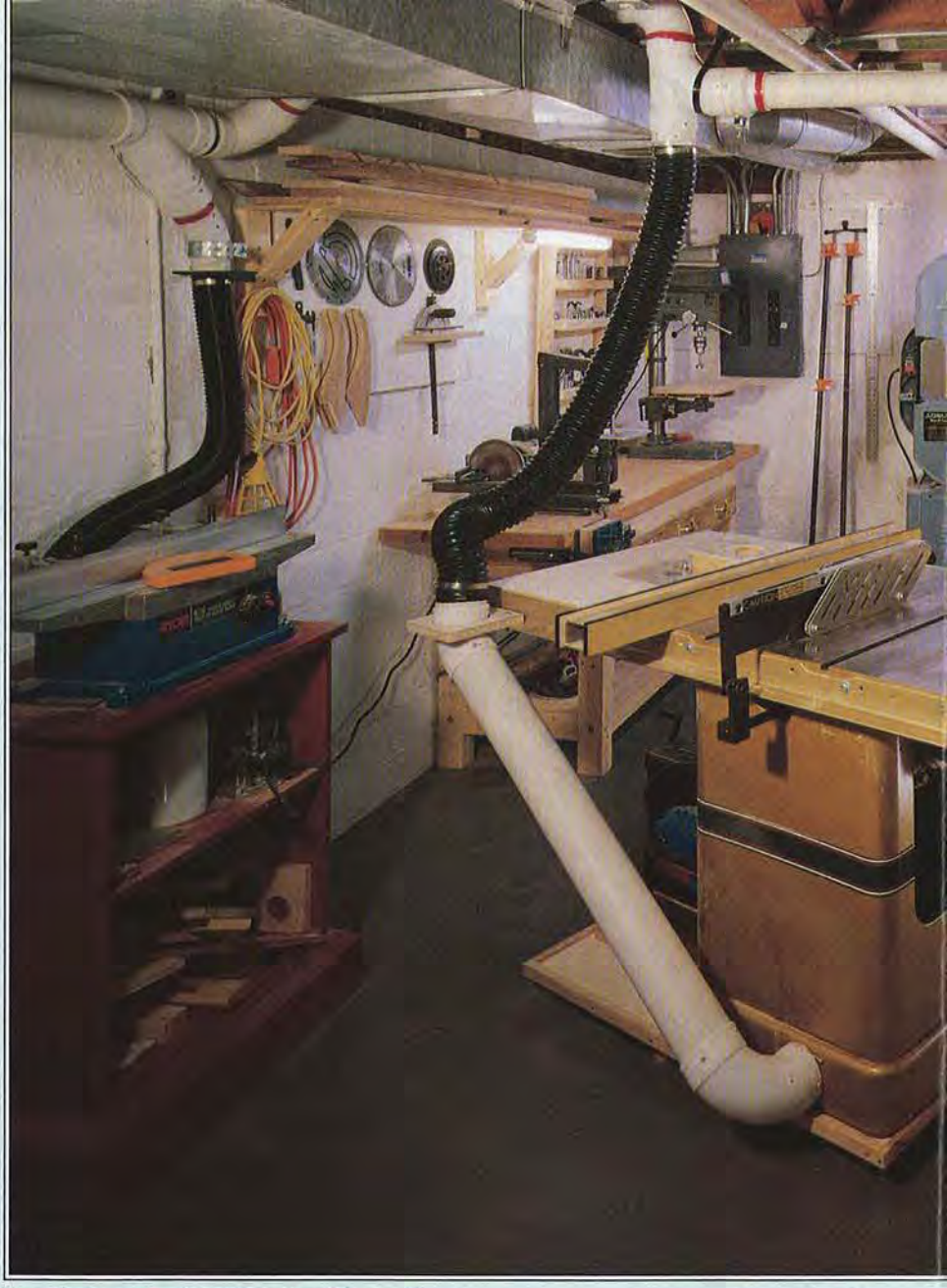
You could buy metal ductwork specifically designed for dust collection, but this material will balloon your costs. For example, 4″-diameter metal pipe costs about $7 for a 30″ length, and joints cost 3 to 4 times more than similar PVC fixtures. However, metal pipe doesn't require a ground wire for dissipating the static electricity that builds up from the movement of dust particles.

To control the flow of air, you'll need to install blast gates at each machine. These gates, which open and close manually, allow you to have maximum air draw at the machine you're using. Just close off all the others.

You have two choices in blast gates: plastic or aluminum. With the exception of one gate, my system has plastic gates because they leak less air and don't inadvertantly open or close due to vibration as the aluminum ones will do from time to time. The aluminum gates cost about twice as much ($14–$16 versus $8 for 4″ plastic models), but I purchased one for the collection point above my tablesaw. The reason: this often-used gate needs the greater durability inherent in its sturdy aluminum construction.

For the 3″ and 4″ flexible hosing that leads from the blast gates to the woodworking machines, we prefer the type that contains a spring steel wire over those hoses made completely of plastic. The wire models cost about $3 more per 10′ of hose, but they flex more easily.

You can purchase PVC pipe, braided copper ground wire, and all the fasteners for your dust-collection system at your local hardware store. See the Buying Guide on page 45 for two mail-order sources for hoses and blast gates.

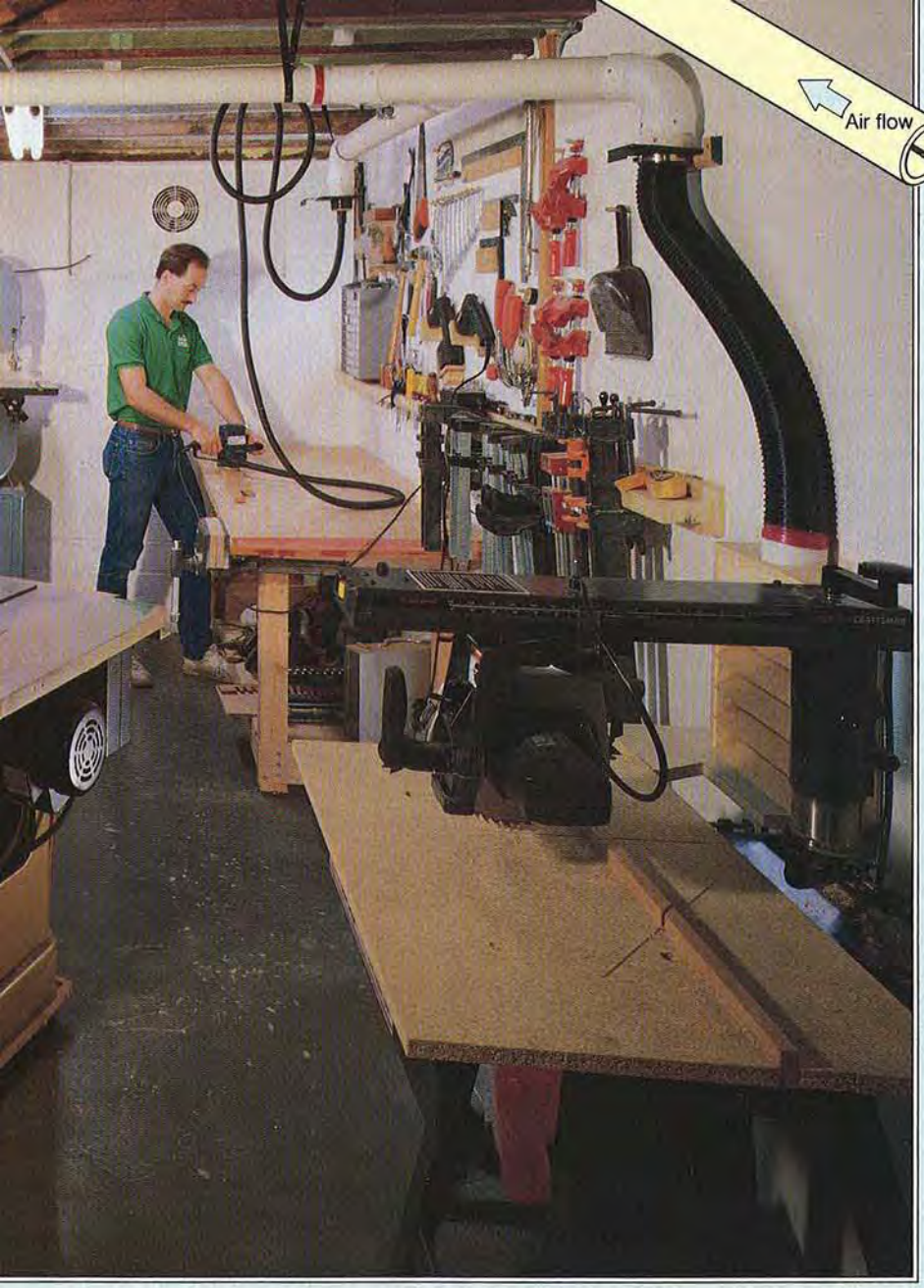


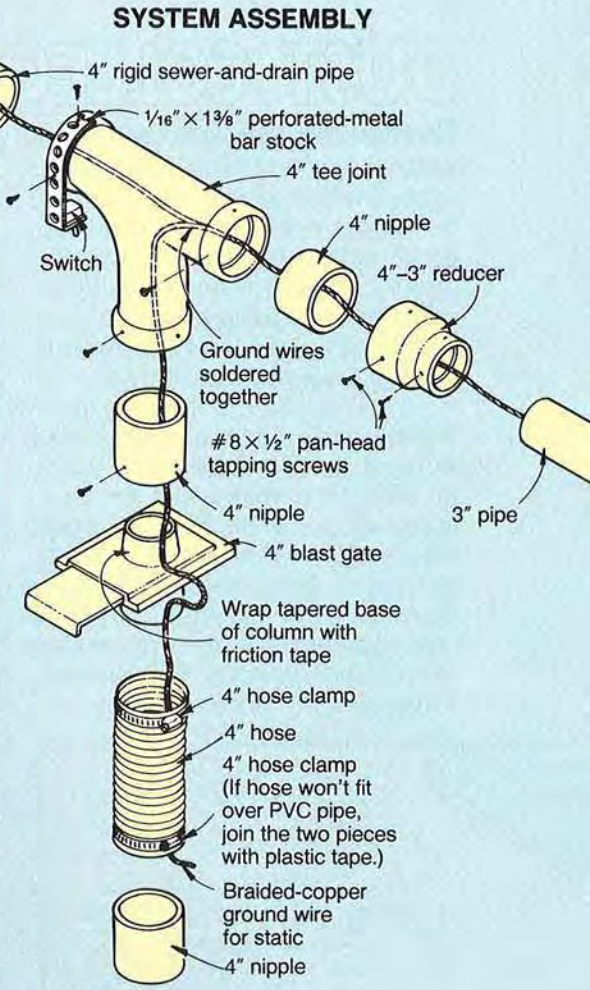
My shop may not always be this neat and clean, but a new central dust-collection system sure helps keep it tidier! A 1-hp dust collector adequately handles this installation, which has a main run of 35′ of pipe.

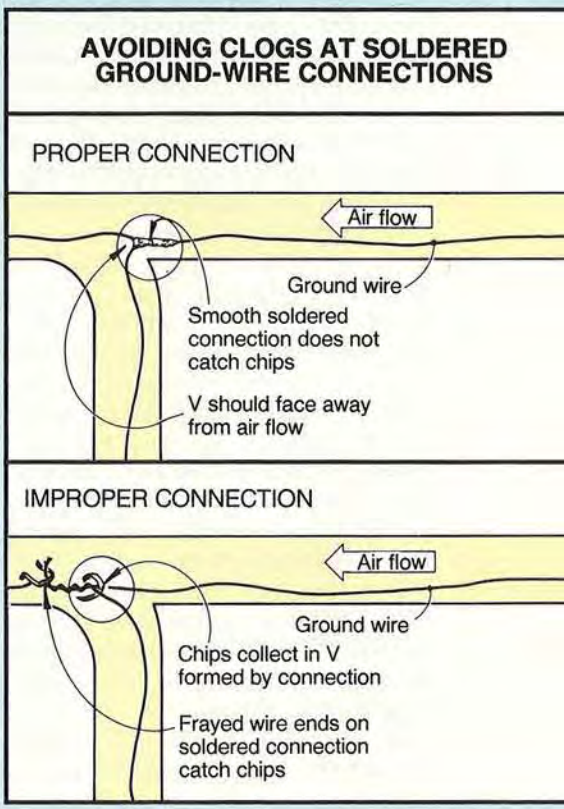
Selecting a dust collector

To choose the ideally sized dust collector for my system, we hooked up a 1-hp Sears model 29978 and a 2-hp Grizzly model G1029 for comparison. Both machines had adequate suction for my installation.

After several trials, I decided to stay with the Sears machine because it took up less space, made slightly less noise, and cost less ($280) than the Grizzly machine ($295 plus shipping). But, we suggest you buy a collector of at least 2 hp if you have a system with a main run that's longer than mine. The same holds true for systems with two or more additional




SYSTEM ASSEMBLY
Air flow
4" rigid sewer-and-drain pipe
1/16" × 1 3/8" perforated-metal bar stock
4" tee joint
4" nipple
Switch
4"–3" reducer
Ground wires soldered together
#8 × ½" pan-head tapping screws
4" nipple
3" pipe
4" blast gate
Wrap tapered base of column with friction tape
4" hose clamp
4" hose
4" hose clamp (If hose won't fit over PVC pipe, join the two pieces with plastic tape.)
Braided-copper ground wire for static
4" nipple


AVOIDING CLOGS AT SOLDERED GROUND-WIRE CONNECTIONS
PROPER CONNECTION
Air flow
Ground wire
Smooth soldered connection does not catch chips
V should face away from air flow
IMPROPER CONNECTION
Air flow
Ground wire
Chips collect in V formed by connection
Frayed wire ends on soldered connection catch chips

elbows, or those that will have more than one blast gate open at a time. Otherwise, you may experience some clogging and inadequate dust pickup.

Installing the ductwork

Beginning with the ductwork closest to your dust collector, cut the pipes to length, slip the joints into position, and temporarily mount this ducting to your walls and/or ceiling. *Do not fasten together the ductwork yet.* Cut the PVC pipe to length with a handsaw, and square the pipe ends with a bandsaw. Scrape burrs from the pipe ends with a pocketknife. See the drawing *above right* for help in assembling the joints.

Once you're satisfied with the main ductwork, fish a braided copper ground wire through the pipes and connect it to any grounded object. At wye and tee joints, solder another piece of ground wire long enough to reach the machine it leads to. To avoid clogs at the these connections, follow the drawing at *right*.

Now, fasten the PVC pipes together with three #8 × ½" pan-head tapping screws at every connection. *Do not glue the connections.* If you do, you'll have to cut the pipe in the event of any clogs. Now, add the blast gates and hoses.

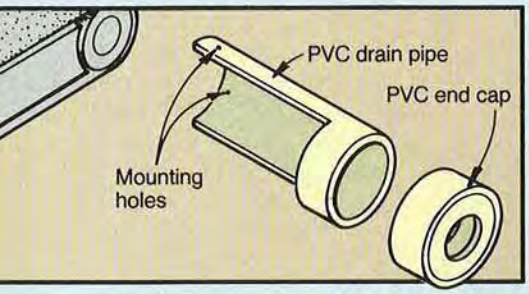
Continued

DUST COLLECTION

Connecting the system to your woodworking machines

Even the best dust-collection system in the world will do you little good unless it connects to efficient collection ports on your dust-producing machines. To give you a hand, let's look at how Jim and I handled my machines:

• **Stationary sander.** Many versions of this machine have built-in dust ports that make for easy hook up to a 3" hose. If your sander doesn't have such ports, you can fashion collection shrouds from plywood or PVC pipe that surround the drive roller and/or disc bottom. (For an example, see the drawing *below*).



• **Jointer.** These machines create large chips and relatively little airborne dust, so dust collection isn't essential. We hooked up my Ryobi JP-155 because it has a handy collection port. But, I wouldn't have done so if I owned a larger jointer with a chip chute that empties into a box.

• **Bench-collection gate.** Nearly all of my portable sanders have dust ports, so I hung a 3" blast gate above my workbench to which I can hook up these prolific dust makers. To construct this setup, I purchased a 1" Bosch dust-collection hose. Then, I made a wooden doughnut that holds one end of the hose in the blast gate as shown at *top right*. I adapted other tools to this Bosch hose by outfitting them with wooden doughnuts and various plastic and copper-pipe fittings. For information on how to make these doughnuts, see page 23.

• **Radial-arm saw.** The louvered-collector project shown on page 46 efficiently collects dust at 90° or 45° cutting angles.

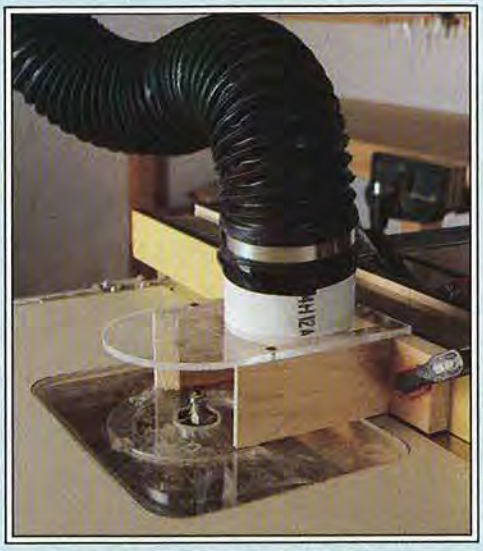
• **Tablesaw, thickness planer, and router.** I consider this setup the neatest part of my shop. As you can see by the photo on page 42, we ran PVC pipe from the dust port at the base of my tablesaw up to a 45° elbow mounted to the back rail of my rip fence. Into this elbow I slipped the flexible hose hanging down from the blast gate. (Using a hose clamp, I secured a 4" length of PVC pipe to the hose for a smooth fit with the elbow). I did not screw together this connection because I wanted the option to connect the hose to my portable planer, which sits on top of my tablesaw's extension when in use as shown at *bottom right*. (See page 48 for notes on making this collector).

My tablesaw extension serves double-duty as a router table, so when routing I clamp the collector shown at *middle right,* to my fence and plug in the hose. For building notes, see the shop tip on page 22. This helper collects most router chips.

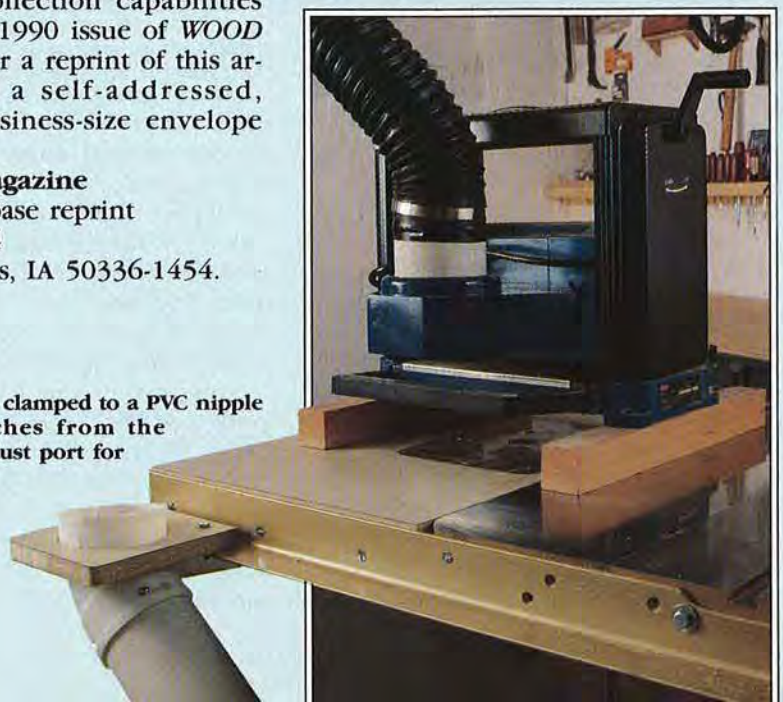
If your tablesaw doesn't have a dust-collection port, see the article on building a tablesaw base with dust-collection capabilities in the April 1990 issue of *WOOD* magazine. For a reprint of this article, send a self-addressed, stamped, business-size envelope and $2 to:

WOOD Magazine
Tablesaw-base reprint
Box 11454
Des Moines, IA 50336-1454.

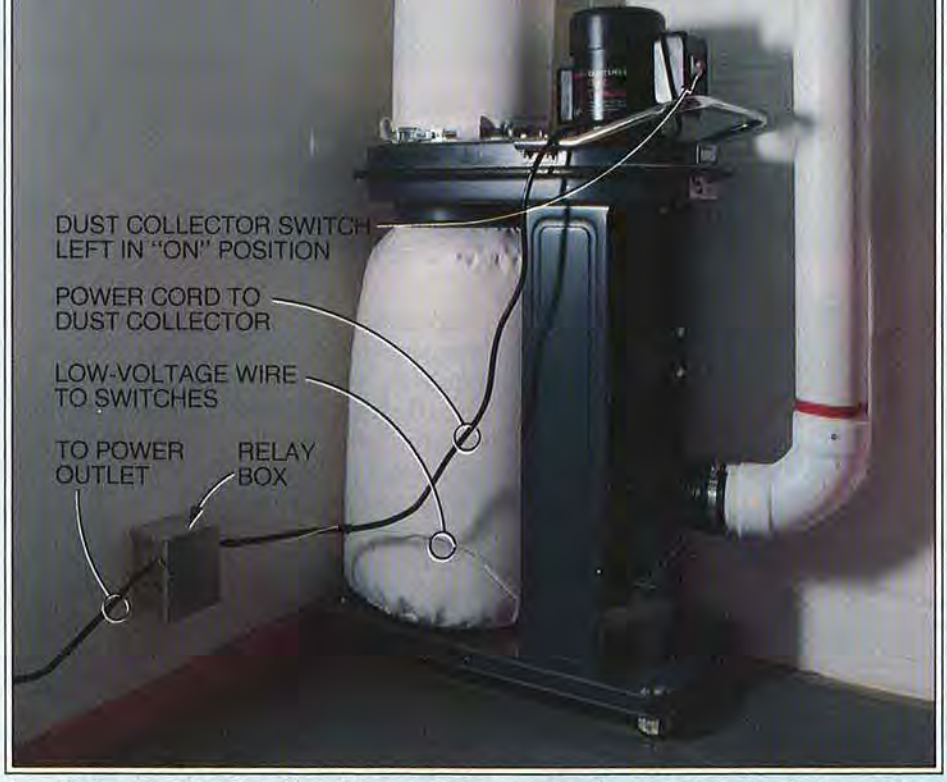
A 3" blast gate outfitted with a wooden doughnut accepts a 1" hose for portable tools such as sanders.



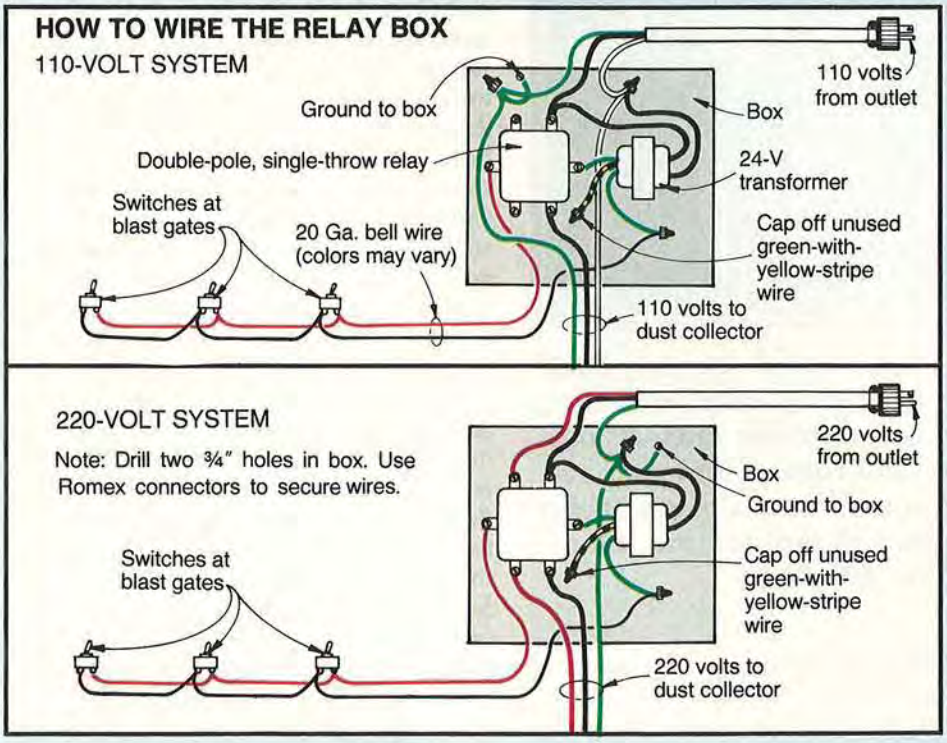
The same hose used for the tablesaw and planer also works with the router-table dust collector.



A flexible hose clamped to a PVC nipple quickly switches from the planer to the dust port for the tablesaw.


DUST COLLECTOR SWITCH LEFT IN "ON" POSITION
POWER CORD TO DUST COLLECTOR
LOW-VOLTAGE WIRE TO SWITCHES
TO POWER OUTLET
RELAY BOX

If you decide to install multiple switches, mount the relay box for the low-voltage switching system on a wall near your dust collector.


HOW TO WIRE THE RELAY BOX
110-VOLT SYSTEM
Ground to box
Double-pole, single-throw relay
Switches at blast gates
20 Ga. bell wire (colors may vary)
110 volts from outlet
Box
24-V transformer
Cap off unused green-with-yellow-stripe wire
110 volts to dust collector
220-VOLT SYSTEM
Note: Drill two ¾" holes in box. Use Romex connectors to secure wires.
Switches at blast gates
220 volts from outlet
Box
Ground to box
Cap off unused green-with-yellow-stripe wire
220 volts to dust collector

Buying Guide

• Low-voltage switching kit. Relay, 24-volt transformer, and box, $47 ppd. plus $3.75 per switch (example: $62 for a four-switch system). Radio Trade Supply, 1017 High St., Des Moines, IA 50309. Call 515/288-7237. Allow 4–6 weeks for delivery.

• Blast gates, hoses, and other dust-collection supplies:

Woodstock International, P.O. Box 2027, Bellingham, WA 98227.

Woodworker's Supply of New Mexico, 5604 Alameda Place NE, Albuquerque, NM 87113.

Switching setups add to the convenience of your system

Let's face it: no matter how well-conceived your dust-collection system may be, it's still a hassle to walk over to the collector every-time you need to turn it on or off. With that in mind, we've come up with two switching arrangements that allow you to start or stop the dust collector from handier locations in your shop.

Option 1: For an investment of less than $20 at your local hardware store, you can add a switched outlet such as the one shown in the shop tip on page 16. Simply locate the toggle switch at a central location in your shop (I would place this switch near my tablesaw), and plug your dust collector into the switched outlet.

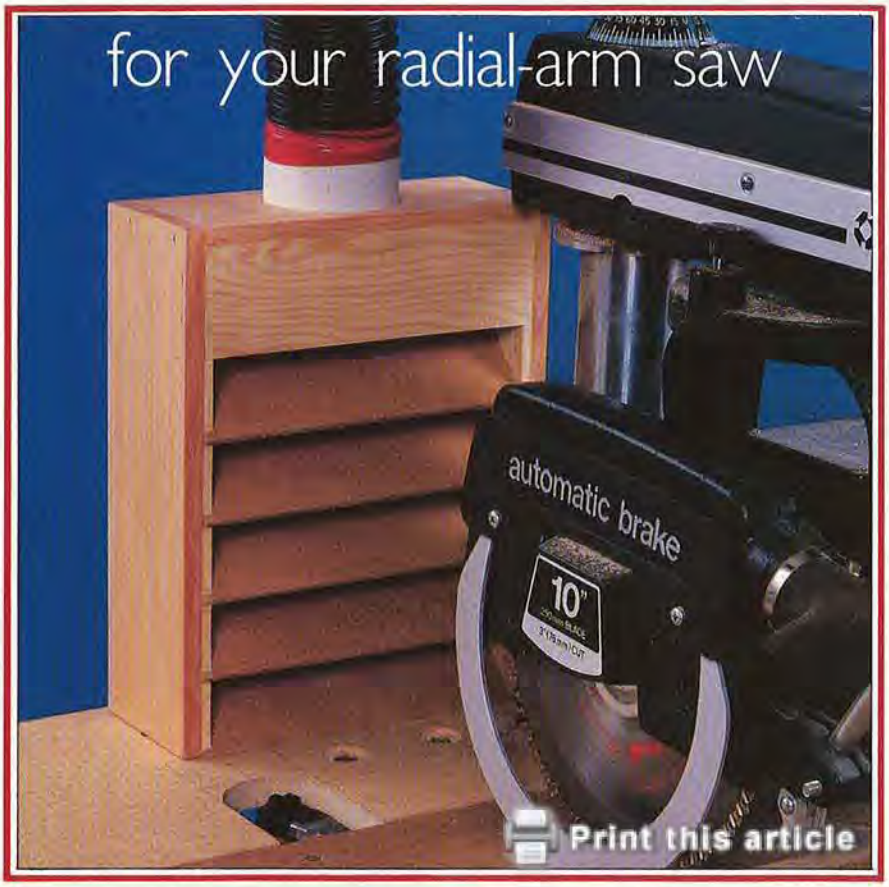
Option 2: For the ultimate in convenience, you can have a switch at each of your dust-producing machines, just as we did in my shop. This setup will cost you $60–$70 depending on the number of switches, and works with either 110- or 220-volt dust collectors. To install the system as shown in the overall drawing on page 41, you'll need the switching kit listed in the Buying Guide *below left,* enough 20-gauge bell wire to connect the low-voltage switches (about 6¢ per foot at hardware stores), a roll of plastic tape to affix this wire to the ductwork, and a few feet of 1/16 × 1⅜" perforated-metal bar stock for securing the switches to the ductwork.

With your supplies gathered, mount the switches near your blast gates and wire them together. Mount the relay box that holds the relay and 24-volt transformer near your dust collector as shown *above left*, and wire these components according to the 110- or 220-volt illustrations at *left*. That's it—you're in business!

Written by Bill Krier with Jim Downing
Illustrations: Kim Downing; Bill Zaun
Photographs: Hopkins Associates

A DOWN-TO-BUSINESS DUST

for your radial-arm saw



Like a spinning car tire mired in mud, a radial-arm saw blade spews loads of material behind it, spattering walls and filling the air with a torrent of sawdust. But with our catch-all dust collector, you can contain the mess, and route it into your vacuum system. Not only does it give your broom a break, it also lets you breathe a bit easier. Just lift and position the removable louvered box for either a 45° or 90° cut.

***Note:** You'll need some thin stock for this project. You can either resaw or plane thicker stock to size.*

Start by cutting the collector pieces

1 From ½" stock, cut the sides (A), top (B), and supports (C) to size, using the dimensions on the Collector drawing, *opposite page*. From the same stock, cut the top front piece (D) to size, bevel-ripping the bottom front edge at 45°.

2 Measure the outside diameter of your hose coupling (we used 3" PVC pipe). Then, with a compass, mark the same size hole centered on the top surface of the top piece (B). Using a circle cutter in your drill press, cut the hole where marked. You could also drill a blade-start hole inside the marked circle, and cut the hole to shape with your jigsaw or scrollsaw.

3 Cut a piece of ¼" stock to 1 1/16" wide by 22" long for the louver supports (E). Angle your radial-arm saw blade or tablesaw miter gauge to 45° from center, and cut the 10 supports to size. (We used a stop to ensure all supports were the same size.) See the Collector drawing for the layout.

4 Cut the wide bottom louver (F) to size, bevel-ripping both edges at 45°. Now, cut the four narrow louvers (G) to size.

Next, assemble the collector

1 Carefully locate, then glue and nail the louver supports (C, E) to the inside surface of each side piece (A) where dimensioned on the Collector drawing. (When positioning the pieces, we used ¼" hardboard scraps to ensure the correct-sized gap between the louver supports.)

2 After the glue dries, drill a ⅜" hole ½" deep centered in the bottom end of each A/C assembly. Cut two pieces of ⅜" dowel or ⅜" steel rod to 1" long. If you use dowel stock, sand a chamfer on the bottom ends, and glue the dowels in the holes. If you chose steel rod, file or grind the chamfer, and epoxy the pins in place.

3 With the ends flush, glue and nail part D onto the bottom front edge of part B.

4 Position, and then glue and nail the pieces (B/D, F, G) between the side assemblies.

5 Measure the length and width of the collector, and cut the back (H) to size. Glue and nail the back piece (H) to the collector.

And finally, add the platform

***Note:** The purpose of the platform is to support the collector directly behind the blade when set at either 45° or 90°. This allows you to collect the most sawdust. The size and configuration of your platform will depend on your particular saw. (Our platform conforms to a 10" Delta radial-arm saw.)*

COLLECTOR

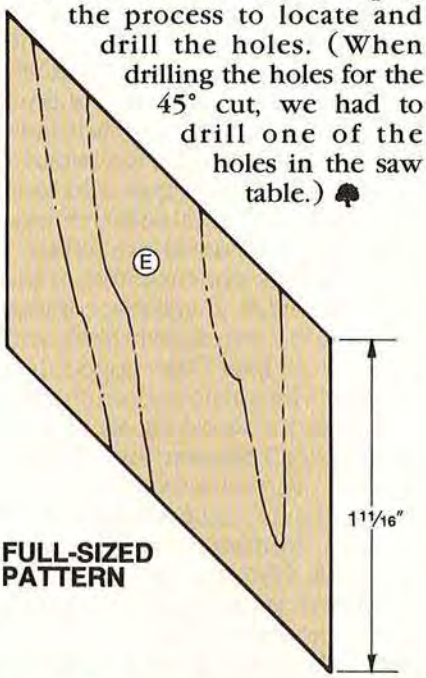
1 Cut the platform to shape from stock that is as thick as your radial-arm saw table. (Our platform measures ¾ × 10⅜ × 20¼".)

2 Place the platform on top of your saw base where shown in the photo on the *opposite page.* Add a spacer block, if necessary, so the top of the platform is level with the top of the saw table. Mark and cut a notch for both the table clamp and the column.

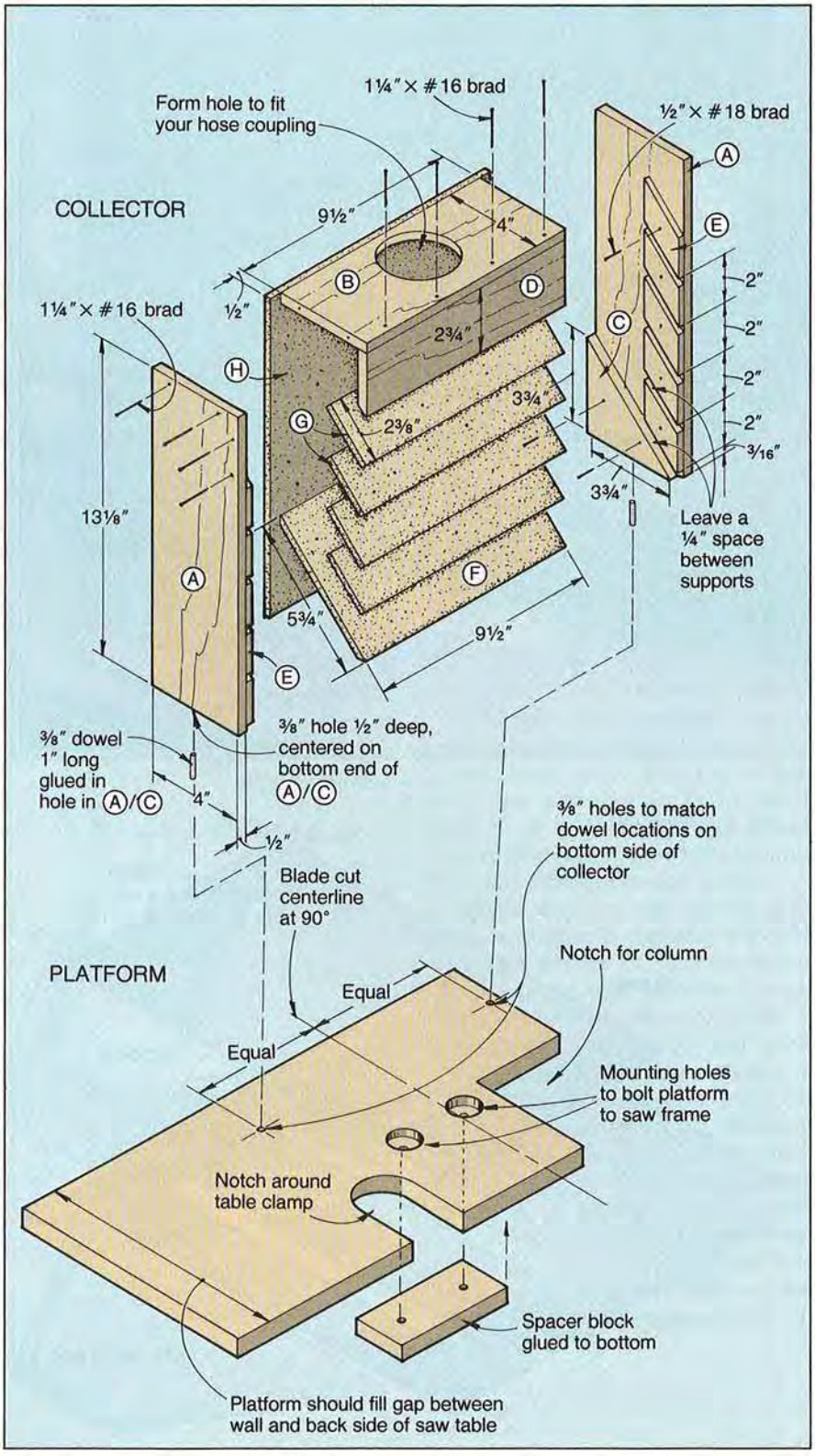
3 Position and clamp the platform on the saw base. Drill and counterbore two holes through the platform, spacer block, and metal base frame. Bolt the platform and spacer to the frame.

4 Center the collector directly behind the saw blade where shown in the photo. For maximum efficiency, position the collector as close to the blade as possible. Mark the locations on the platform for the two ⅜" dowels glued in the bottom of the collector. Drill mating holes in the platform.

5 Set the radial-arm saw blade to 45°, position the collector directly behind the blade, and repeat the process to locate and drill the holes. (When drilling the holes for the 45° cut, we had to drill one of the holes in the saw table.)



FULL-SIZED PATTERN



Project Design: James R. Downing Photograph: John Hetherington Illustrations: Jamie Downing; Bill Zaun

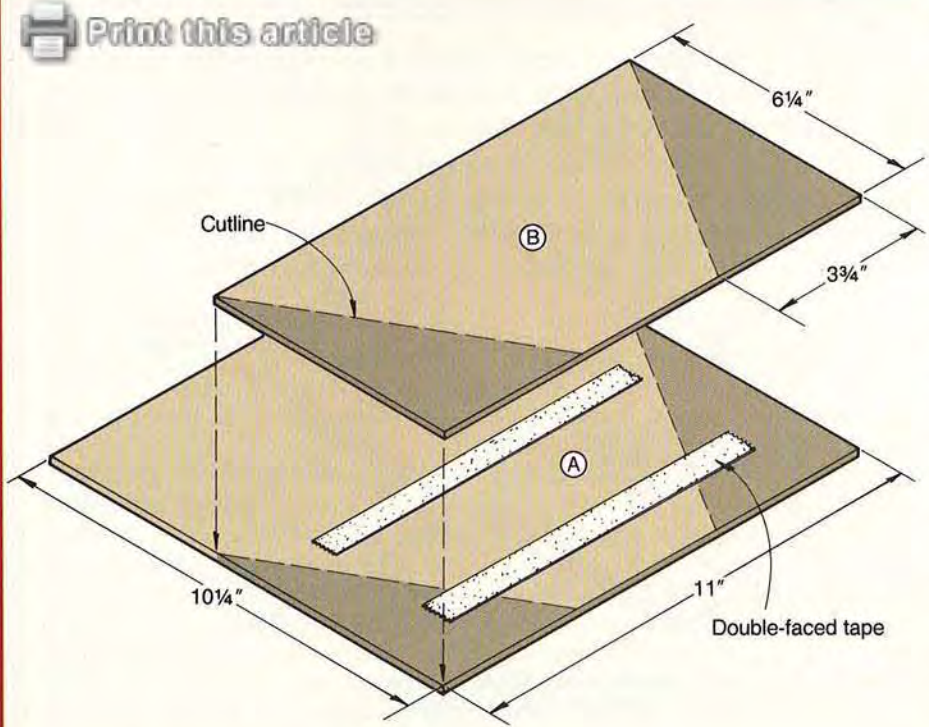
THE PORTABLE

Attention portable planer owners! If you'd rather spend more time woodworking and less time sweeping up the shop, let this homemade helper come to your rescue. It's our simple-to-make hood that attaches to the rear of your thickness planer and connects to a central dust-collection system or portable shop vacuum. Finally, you can gather your shavings at big savings!

Note: *We sized our hood to fit a Ryobi AP-10 portable planer, but you can alter the dimensions and ¼" mounting hole locations to fit the model you own.*

To set up a dust-collection system for your shop, see page 40.

Print this article



First, cut the hood pieces

1 Cut one piece of ⅛" stock to 10¼×11" for the top (A) and another to 6¼×11" for the bottom (B). (We used plywood, but tempered hardboard also would work.) With the edges and one end flush, use double-faced tape to adhere the pieces face-to-face.

2 Using the dimensions on the drawing at *left*, mark the cutlines on part B. Bandsaw the hood parts to shape. (We sawed just outside the cutlines, and then sanded to the lines on a stationary belt sander.) Separate the pieces, and remove the tape.

3 Mark the dust-collection hole and mounting-hole centerpoints on part A. (Because we connected our hood to a whole-shop dust collection system that uses 4" PVC pipe [4¼" outside diameter], we

DUST STOPS HERE

PLANER HOOD

cut a 4¼" dust-collection hole. If you're making the hood for a portable shop vacuum, work off the outside diameter of the plastic adapter at the end of the hose.)

4 Using a circle cutter in your drill press, center the pilot bit over the marked dust-collection hole centerpoint, and cut the hole in the hood top (A). You also could drill a blade-start hole, and cut the dust-collection hole with a scrollsaw. Finally, switch bits and drill a pair of ¼" mounting holes where shown.

5 Referring to the dimensions in the Bill of Materials and on the Exploded View drawing, cut the sides (C) and end (D) to size from ¾"-thick stock, beveling the ends of each at 30°.

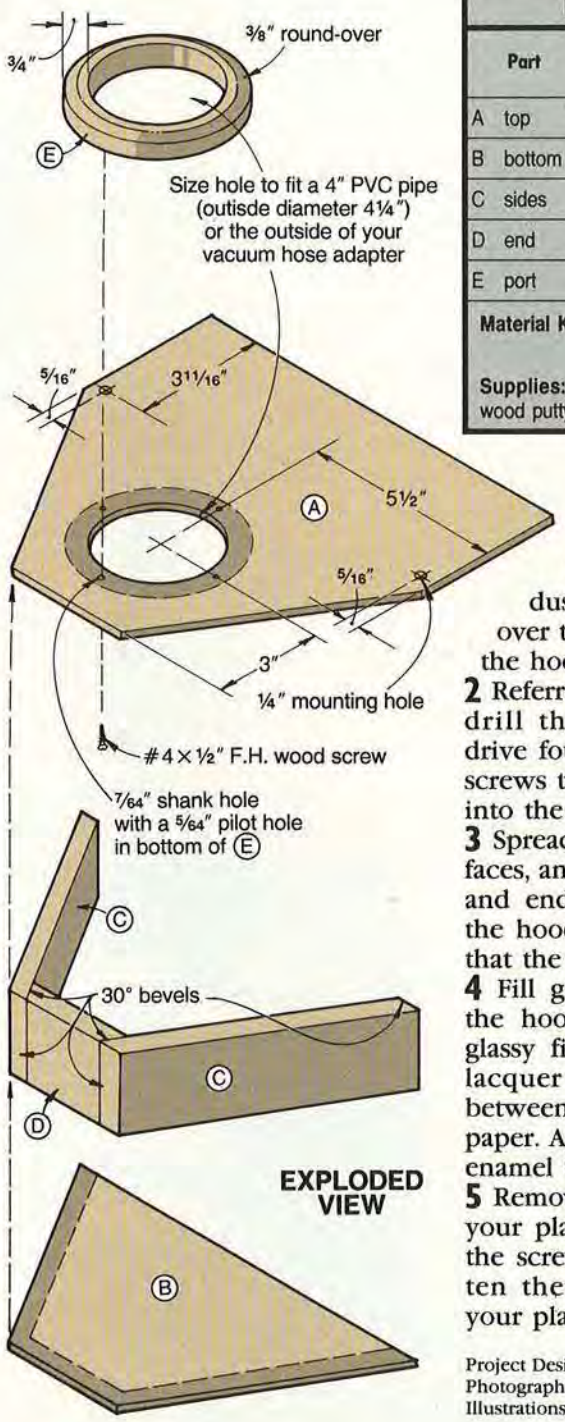
Now, let's construct the dust-collector port

1 Cut a 6" square from ¾"-thick stock for the dust-collector port (E). Mark diagonal lines on the square to find its center.

2 Next, mark a circle on the blank, using the dimensions for the dust-collection hole cut earlier. Mark a second circle ¾" to the outside of the first.

3 Drill a blade-start hole and cut just inside the marked inner circle with a scrollsaw or jigsaw. (A circle cutter also works.) After making the cut, sand to the line with a drum sander mounted in a drill press. Check the fit of the PVC pipe or hose adapter in the hole; it should fit snugly. Cut the outside circle to shape on the bandsaw and sand smooth.

4 Rout a ⅜" round-over along the top outside edge of the collection port where shown in the drawing at *right*.



Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A top	⅛"	11"	10¼"	PW	1
B bottom	⅛"	11"	6¼"	PW	1
C sides	½"	2¼"	7⅝"	P	2
D end	½"	2¼"	3"	P	1
E port	¾"	5¾"	5¾"	PW	1

Material Key: PW-plywood or hardboard, P-pine

Supplies: #4 × ½" flathead wood screws, wood putty, sanding sealer, paint.

It's time to assemble the parts

1 Glue and clamp the dust-collection port centered over the dust-collection hole in the hood top (A).

2 Referring to the drawing at *left*, drill the mounting holes and drive four #4 × ½" flathead wood screws through the hood top and into the dust-collection port.

3 Spread glue on the mating surfaces, and glue and clamp the side and end pieces (C, D) between the hood top and bottom. Check that the outside edges are flush.

4 Fill gaps with putty and sand the hood smooth. To achieve a glassy finish, apply two coats of lacquer sanding sealer, sanding between coats with 220-grit sandpaper. Apply several coats of spray enamel (we applied four).

5 Remove the outfeed hood from your planer and set it aside. Use the screws from the hood to fasten the dust-collector hood to your planer.

Project Design: James R. Downing
Photograph: John Hetherington
Illustrations: Jamie Downing

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HIGH-FLYING BALLOON MOBILE

To "air" is human, to turn these balloons, divine. We've turned several, and developed a helpful clamping jig to simplify the laminating process. We also used an auxiliary faceplate to turn the basket. Even after you've completed this project, you'll find these two shop aids helpful.

Note: *The instructions explain how to make the checkered-pattern balloon. Repeat the lamination process aligning the pieces differently to form the top two balloons as in the photo at right.*

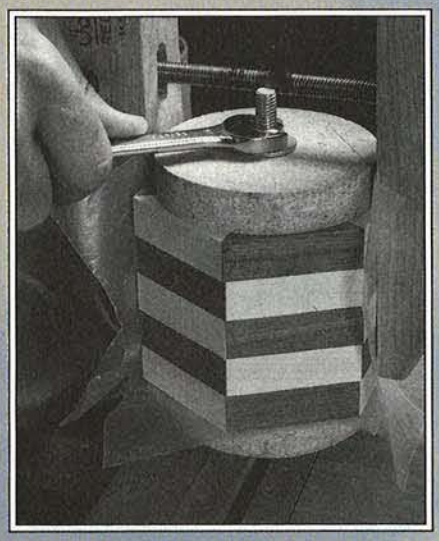
First, form each layer with miter-cut pieces

1 Cut a piece of ¾" walnut and a piece of ¾" maple to 1½×40".

2 Set the miter gauge on your tablesaw 30° from center, and cut 15 pieces of each species to the shape shown on the Block detail on the opposite page. (We attached a wooden auxiliary fence to our miter gauge, and then clamped a stop to the fence for consistent lengths. We test-cut six scrap pieces to verify the angle.)

3 Alternate and clamp pieces of walnut and maple, as shown on the drawing on the opposite page. The setup shown helps keep the top and bottom surfaces flush. Use a rubber band to hold the pieces. Then, switch to a band clamp to hold the pieces firmly together. (We placed waxed paper between the particleboard discs and the lamination to prevent them from bonding.) Repeat for each of the five remaining layers.

4 If necessary to flatten surfaces, lightly sand the top and bottom surfaces of each layer (we did this on a stationary sander).



Glue and align the individual laminated layers, and then tighten the ⅜" nut to clamp the layers together.

The clamping jig helps laminate the layers

1 Spread glue on the mating surfaces. Carefully align the joint lines, and clamp the layers together, using the clamping device.

2 From ¾" stock, cut four maple discs 4⅛" in diameter. Drill a 1/16" hole centered in each disc. Glue and clamp two discs centered on the top and two centered on the bottom of the lamination.

With the balloon lamination mounted between centers, turn balloon to shape.

Let's move to the lathe and have some fun

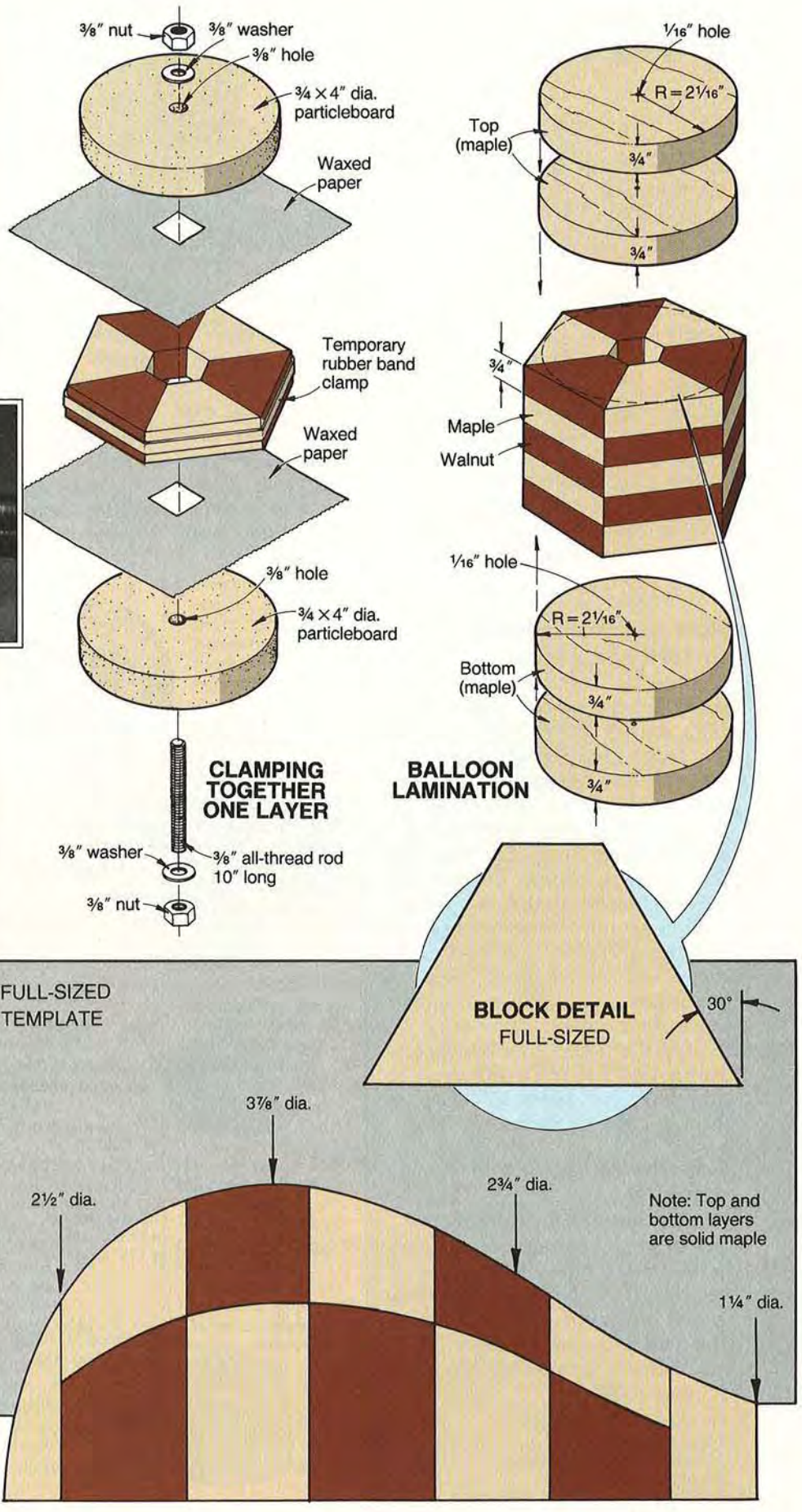
1 Transfer the balloon template pattern shown at *right* to poster board. Cut the template to shape with an X-acto knife.

2 Mount the balloon between centers on your lathe, using the 1/16" holes in the ends of the lamination to center the headstock and tailstock spindles. Turn the balloon to shape, using the template as a guide. (We used a ⅜" gouge and a ½" round-nosed scraper. See the photo *above*).

3 Sand the balloon. Using a parting tool, part the bottom (basket end) of the balloon from the lathe. Use a handsaw to trim the tenon from the balloon top. Contour-sand the balloon top.

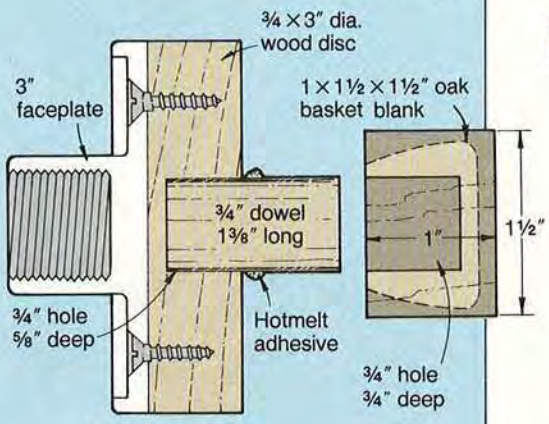
4 Cut a 3" hole in a 1"-thick piece of scrap stock. Place a piece of cloth over the hole, and place the balloon over the hole, as shown in the drawing on the next page. Position the balloon and support under your drill press, and bore a ¾" hole, centered on the 1/16" hole

Continued



MOBILE

through the bottom of the balloon. Switch bits, and drill four 1/16" holes 1/2" deep into the edge of the balloon where shown on the Basket and Balloon drawing.


3/4 × 3" dia. wood disc
3" faceplate
1 × 1 1/2 × 1 1/2" oak basket blank
3/4" dowel 1 3/8" long
1"
1 1/2"
3/4" hole 5/8" deep
Hotmelt adhesive
3/4" hole 3/4" deep

Now use the template to turn the basket

1 From 1½"-thick oak (we laminated two ¾" pieces), cut a piece 1½" square. Draw diagonals on one face to find center. Hold it in a handscrew clamp, and use your drill press to bore a ¾" hole ¾" deep at the marked centerpoint.

2 Form an auxiliary faceplate like that shown *above*. Adhere the basket blank to the ¾" dowel with a couple drops of hotmelt adhesive. Turn the basket to shape, and sand smooth. Twist off the basket from the dowel, and remove the hotmelt.

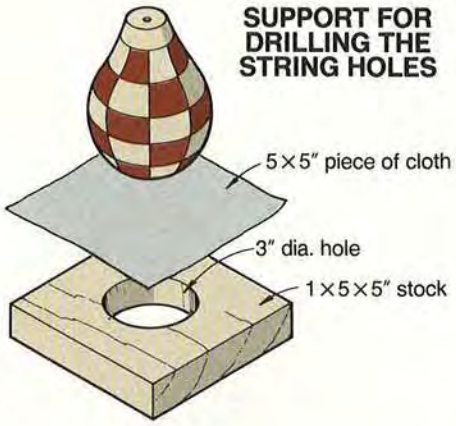
3 Hold the basket in a handscrew clamp, and use your drill press to drill four 1/16" holes ½" deep in the top edge of the basket.

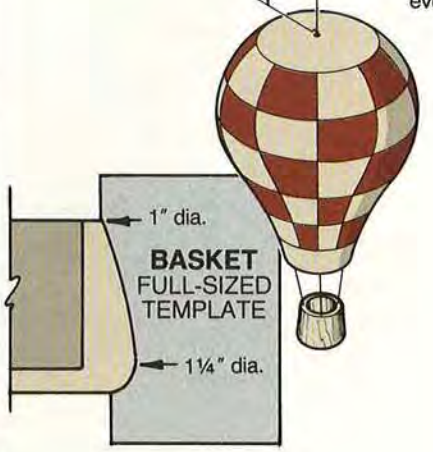
Add the finish, and string 'em up

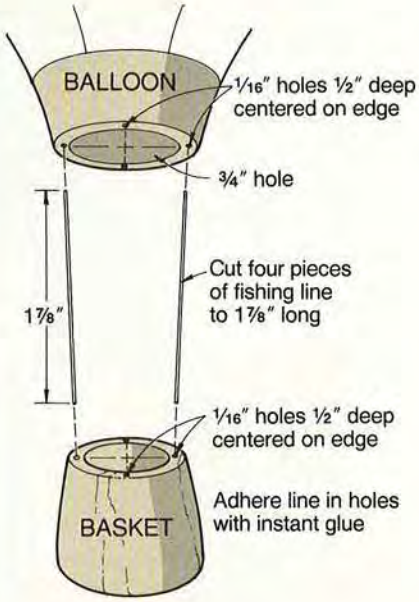
1 Apply the finish to the pieces.

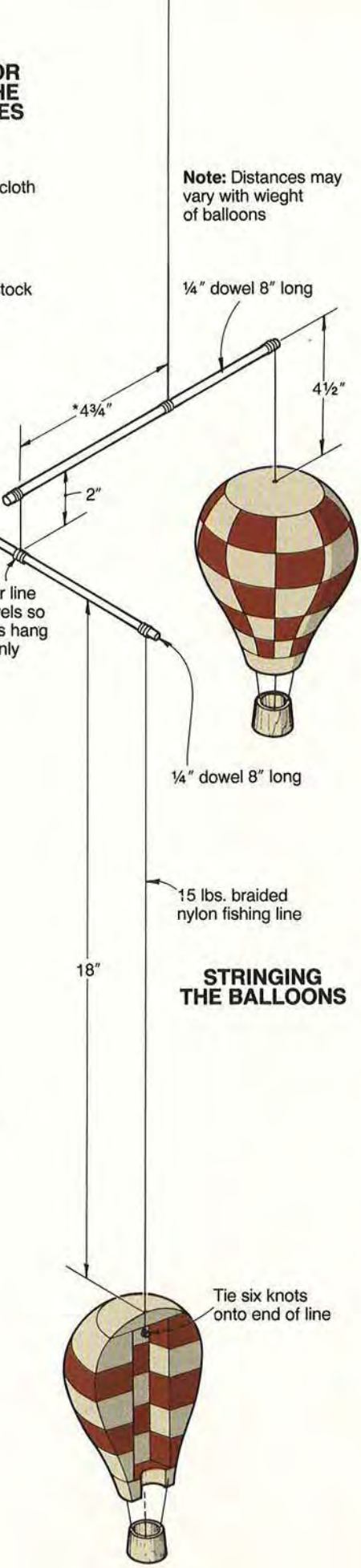
2 Using the Basket and Balloon drawing as a guide, hang the baskets from the balloons. Referring to the drawing titled Stringing The Balloons for reference, hang the balloons from two pieces of ¼" dowel.

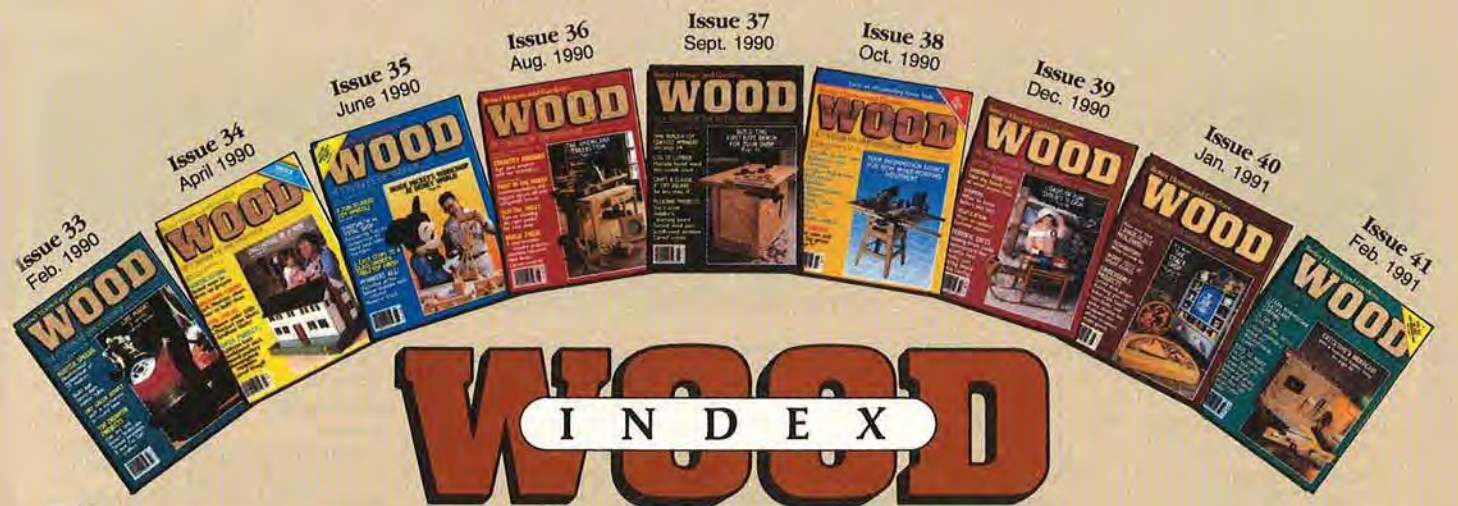
Produced by Marlen Kemmet
Project Design: Don Hart
Photographs: John Hetherington, Hopkins Associates
Illustrations: Kim Downing; Bill Zaun






BALLOON
1/16" holes 1/2" deep centered on edge
3/4" hole
Cut four pieces of fishing line to 1 7/8" long
1 7/8"
1/16" holes 1/2" deep centered on edge
Adhere line in holes with instant glue
BASKET


Note: Distances may vary with wieght of balloons
1/4" dowel 8" long
4 1/2"
*4 3/4"
2"
8 1/2"
Center line on dowels so balloons hang evenly
1/4" dowel 8" long
15 lbs. braided nylon fishing line
18"
STRINGING THE BALLOONS
Tie six knots onto end of line



WOOD INDEX

Print this article

Cumulative index for issues 33-41

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Print this article

DUCK UNDER GLASS

A plaque that points to plenty of possibilities

Seeking a distinctive-looking project? Search no more. We sandwiched this spirited wildlife scene between two contrasting sheets of glass, matted it with oak, and then rimmed the project with a complementary walnut frame. Hang this scene on the wall, or add a pair of walnut feet to stand it on a shelf.

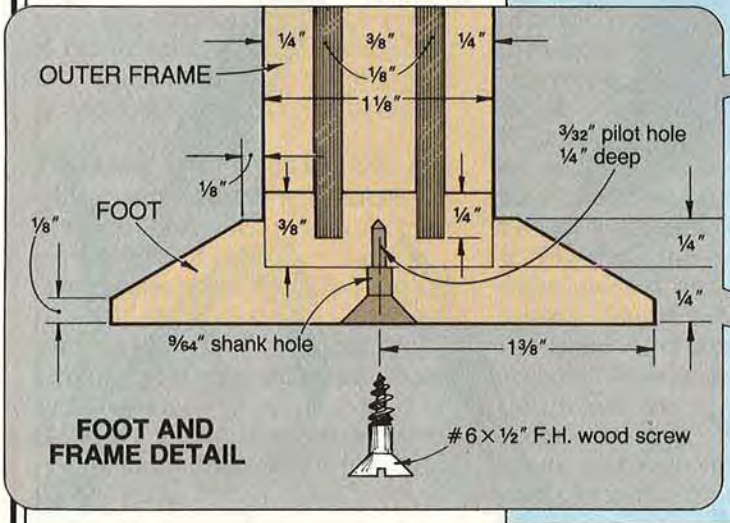
Note: *If you plan to hang the project on the wall, add a picture-hanging wire to the back. For a freestanding unit, add the feet.*

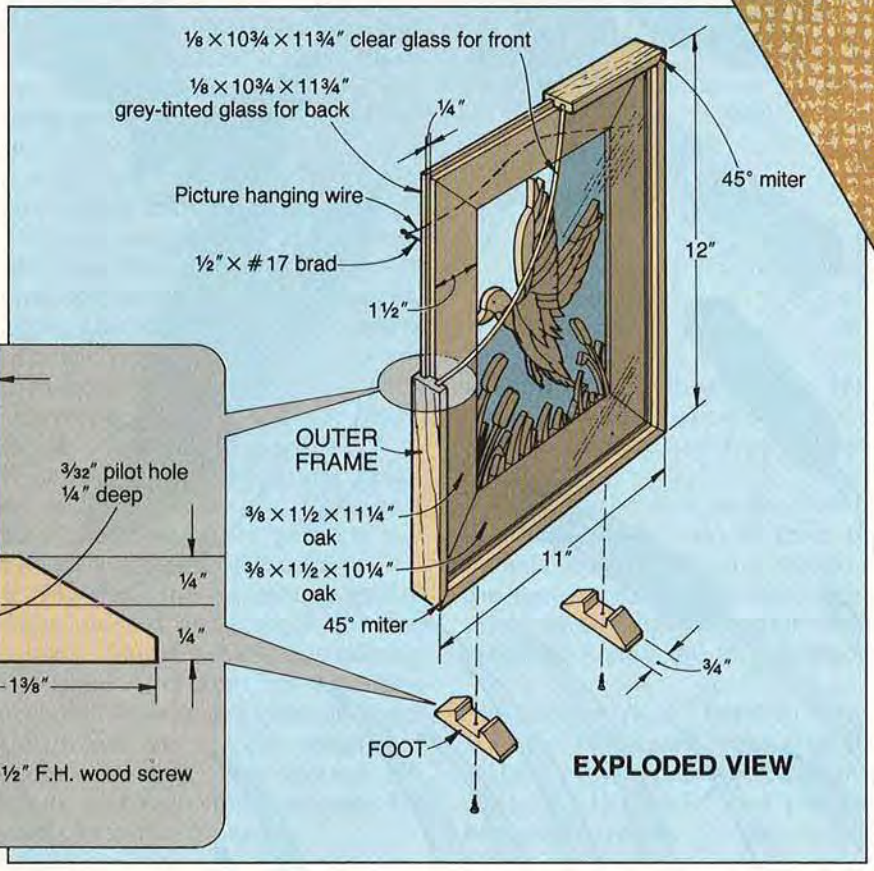
You'll need some thin stock for this project. You can either resaw or plane thicker stock to size.

Let's start with the frame

I Have one piece of ⅛" grey tinted glass and one piece of ⅛" clear

Continued

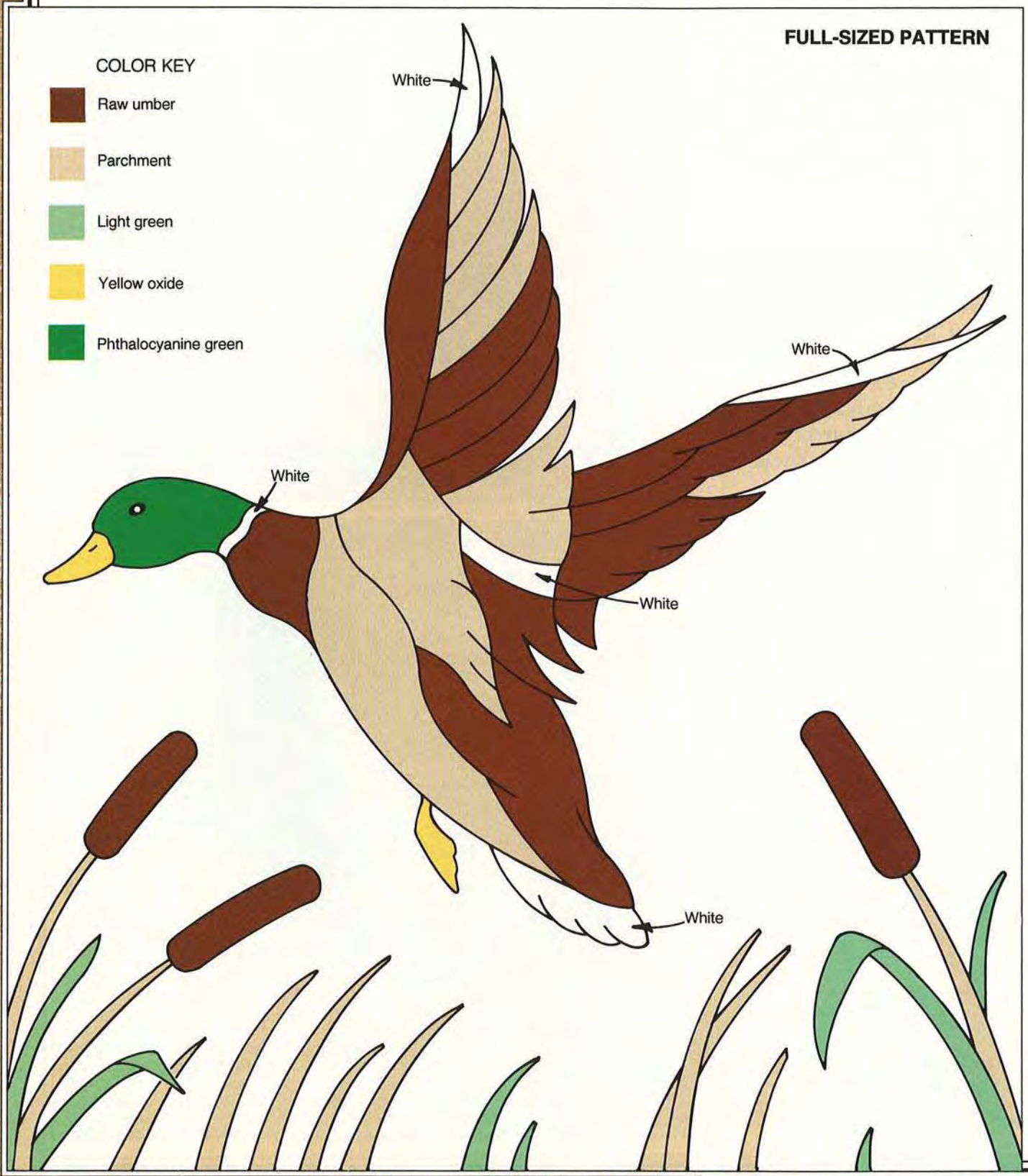




glass cut to 10¾ × 11¾". For a good fit later, double-check that both pieces of glass square up and measure the same size.

2 From ⅜" walnut (we planed thicker stock), cut two pieces of stock to 1⅛" wide by 26" long for the exterior frame pieces.

3 Using the Foot and Frame detail accompanying the Exploded View drawing for reference, cut a pair of ⅛" kerfs ¼" deep along the



length of each frame strip. Check the fit of the glass in the grooves and widen the grooves slightly if necessary. Sand the two strips.

4 For the matlike inner frame, rip and crosscut two pieces of ¼" stock to 1½×24". (We used oak.)

5 Miter-cut the inner frame pieces to length, and position them on one of the glass panels; the outside edges of the pieces should be ¼" in from the outside edges of the glass panel. Trim if necessary.

6 Spread waxed paper on a flat surface. Apply woodworker's glue to the mating mitered ends of the inner frame pieces. Assemble the frame on the waxed paper. Drive nails into the work surface next to the frame members to hold the pieces firmly together. Check that the surfaces remain flush. Later, sand the frame.

Time to fire up the scrollsaw

1 Make three photocopies of the pattern. Using one of the photocopies and spray adhesive, adhere the paper pattern to ¼" baltic birch plywood.

2 Scrollsaw the pieces to shape (we used a #2 blade). Peel off the paper pattern from the scrollsawed pieces. If the paper pattern resists removal from the wood, add a splash of lacquer thinner to dissolve the spray adhesive. Position the scrollsawed pieces on the second photocopied pattern.

3 With 220-grit sandpaper, lightly sand the cut edges of each piece.

4 Brush paint on each piece using the opening photograph as a guide. (We used acrylic paints.)

Fasten the pieces to the glass, and add the frame

1 Thoroughly clean both faces of each piece of glass.

2 Tape the third full-sized pattern to a flat piece of stock. Center the grey-tinted glass over the paper pattern and tape the glass to the work surface.

3 Using clear silicone sealant, center and adhere the inner frame to the glass.

Place a fine bead of silicone sealant on the back side of each piece, and then adhere the pieces to the glass directly above the outline on the photocopied pattern.

4 Add a dab of silicone to all painted pieces, and adhere them to the glass, positioning them directly over the paper pattern as shown in the photo *above*. (We used tweezers to accurately locate the smaller pieces.)

5 Remove the glass and attached parts from the work surface. Place the piece of clear glass on the front of the colored pieces. Set the two pieces of glass aside.

6 Add the finish to the inner surfaces of each outer frame piece.

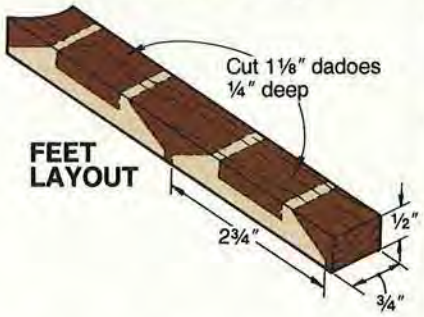
7 Fit the outer frame pieces onto the glass. Being careful not to get glue or dust inside the framework, apply glue to the mitered corners of the frame and clamp them. (We held the pieces together with strapping tape until the glue dried.) Check for square.

8 Sand the mitered joints flush, mask the glass on the front and back of the assembly, and add the finish to the rest of the frame.

9 To hang the project, partially drive two ½"×#17 brads into the outside frame pieces, positioning the brads 1¾" from the top edge and 3/32" in from the outside edge. Wrap and tie a 12½" length of picture-hanging wire around the brads, and then finish tapping the brads into the frame.

For a freestanding unit, add the feet

1 Transfer the foot pattern twice to a piece of ¾×½×12" walnut. Cut the dadoes where shown on the drawing *below*, and then cut the feet to shape.



2 Drill and countersink a hole through the bottom center of each foot. Sand the feet and add the finish.

3 Position the feet on the bottom of the assembly 1⅝" in from the outside edges. Use the holes in the feet as guides to drill mating holes in the bottom outer frame member. Screw the feet in place.

Supplies: #6×½" flathead wood screws, ⅛" glass, clear silicone sealant, acrylic paints, clear finish, 2—½"×#17 brads, and picture-hanging wire.

Project Design: Jamie Downing Photographs: Hopkins Associates Illustrations: Jamie Downing

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REVELATION

AN INSIDE LOOK AT THE TALES

History—unwritten but not unrecorded—unfolds for those who can read a tree's annual growth rings. Found through a science called dendrochronology, these natural archives tell of droughts, insect infestations, forest fires, erosion, and more.

In the hellish heat the young soldier staggers under the weight of his pack, then reels, collapsing against his companions. General Stonewall Jackson surveys the scene through the choking dust. "If only the weather would break. The men won't be fit to fight after marching in this," he tells his aide. "Even the jack pines wilt."

—Somewhere in northern Virginia, April 1862.

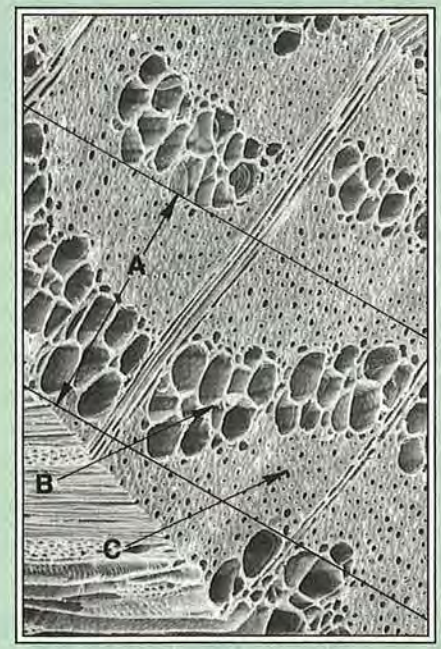
Without the benefit of a history book, Richard Phipps, a researcher with the U.S. Geological Survey in Urbana, Illinois, knows for certain that Virginia's Rappahannock River nearly ran dry that unseasonably hot spring when General Thomas "Stonewall" Jackson marched his army north. He also can confirm that rain finally came the following September, when the Confederate army wallowed in mud on their retreat. Richard isn't a Civil War buff content with historical journals, though. He's a botanist working in a highly specialized field. And by using a special boring tool, he literally extracts such data from trees.

Forester Paul Krusic measures the rate of soil erosion on hiking trails in New Hampshire's White Mountains for the Forest Service. For this and numerous other tasks, he, too, relies on trees.

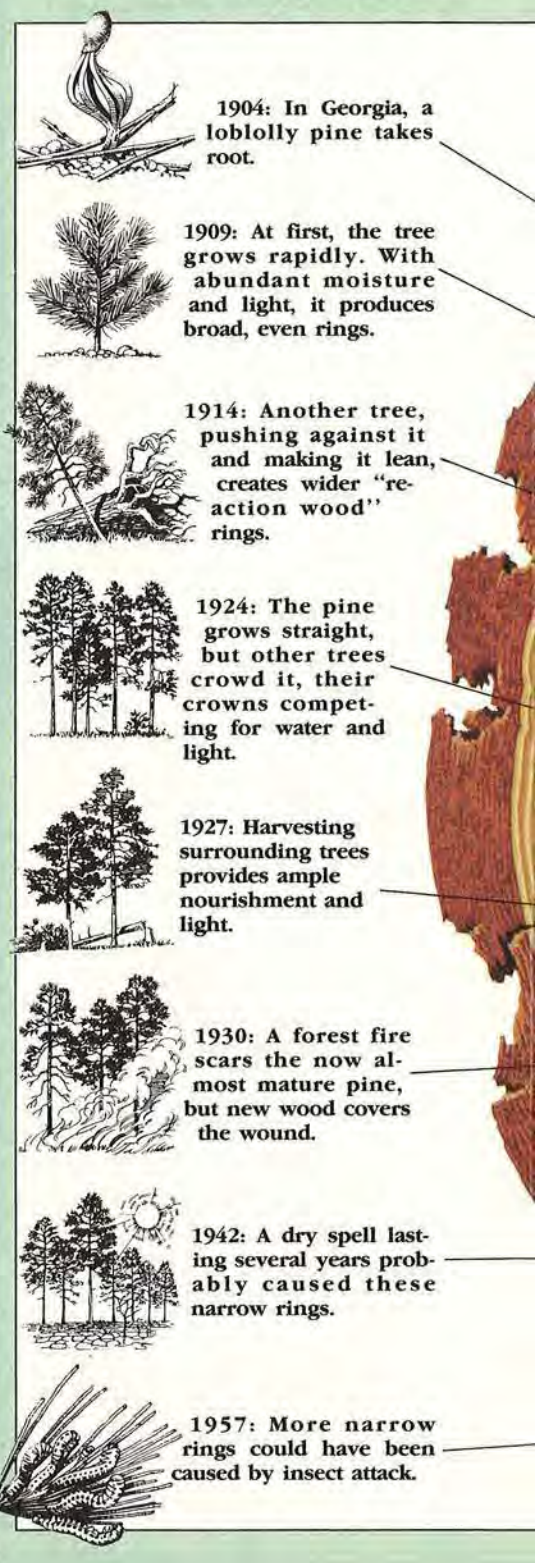
Both men work in dendrochronology, the science of dating events and environmental changes in history through the study of a tree's annual growth rings. But, their work represents only two aspects of all the many things that tree rings can tell you.

History locked in the rings

"Trees in temperate regions undergo an annual cycle composed of a growth period—the spring and summer—and a dormant period," explains botanist Phipps. "Usually, in the early part of the growing season, growth is rapid, resulting in large, thin-walled cells, called *earlywood*. Later in the season, growth slows down, and small, dark, thick-walled cells develop. This is *latewood* [see photo, *below*]. And, the sharp contrast between earlywood and latewood becomes a distinct line.



ANATOMY OF A TREE RING
A. Annual growth ring (elm)
B. Earlywood cells
C. Latewood cells


1904: In Georgia, a loblolly pine takes root.
1909: At first, the tree grows rapidly. With abundant moisture and light, it produces broad, even rings.
1914: Another tree, pushing against it and making it lean, creates wider "reaction wood" rings.
1924: The pine grows straight, but other trees crowd it, their crowns competing for water and light.
1927: Harvesting surrounding trees provides ample nourishment and light.
1930: A forest fire scars the now almost mature pine, but new wood covers the wound.
1942: A dry spell lasting several years probably caused these narrow rings.
1957: More narrow rings could have been caused by insect attack.

Continued

IN THE RINGS
TREES TELL

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TREE RINGS

"When you look at a tree in cross-section, such as the top of a stump," he continues, "the line looks like a circle. That's the boundary between two annual growth increments, or the ring."

Easy enough, right? Just count the rings and you'll determine the age of a tree. True enough, but, researchers like Richard say there's more to a tree's tale.

"Because various environmental factors, such as drought or insect infestation, can affect the amount of food a tree produces for new wood, the size of the annual ring is related to the growing conditions of that year," he notes (see illustration, page 61).

Stumps and cross-sectional slabs vividly display a tree's annual rings, and have been used by dendrochronologists since the science's infancy around the turn of the century. Today, though, researchers prefer to take core samples of trees with an increment borer because such a wound quickly heals. As shown in photo *below,* the increment borer looks like a T-handled auger. However, the ¼" bit is hollow so that it collects a plug of wood as it bores to the tree's center. An extractor pulls the plug free before the bore is removed for study.

Sunspots to earthquakes: tree rings tell it all

During his 30-year career in dendrochronology, Richard has studied tree rings in order to reconstruct stream-flow rates. "It's really dendro*hydrology*," he says. "I collect tree ring samples from species especially sensitive to growing conditions [the types of trees vary by region]. These become pieces of a puzzle. When you add them together, you get a more complete picture of what that stream looked like at a period in time, frequently to the month, often even less."

Dendrochronology came to the forefront around the turn of the century, when astronomer A.E. Douglass was attempting to discover a link between sunspot cycles and changes in the earth's climate. It was the publicity associated with a famous criminal trial, though, that showered the study of tree rings with limelight.

"The usefulness in the regularity of tree-ring patterns was brought to light in the Lindbergh kidnapping case in the 1930s," says the Forest Service's Krusic. "The prosecution proved that the ladder used by the accused to climb into the Lindbergh's second floor window was made out of timbers cut from the floor in his attic. The tree-ring patterns in the ladder's wood matched those found in the cut, attic floorboards of the house."

In his work at the Forest Service's Northeastern Forest Experiment Station in Durham, New Hampshire, Krusic has done some pioneering research with dendrochronology in measuring the effect of recreation on soil erosion. The study, however, involved root rings rather than tree rings.

"When a wound, such as a nick from a hiking boot, occurs at the time a root is first exposed, a scab forms to heal it," Paul explains. "Eventually that scar becomes locked in time within the ring formed that year in the root. Since the healing begins within days, we can also say when it happened during the growing season, then measure the amount of soil lost from the top of the wounded root to the present ground level and that gives us an erosion rate."

Another avenue of dendrochronology has Paul examining thousands of tree-ring core samples taken from sites throughout the northeastern United States. "I calculate which sites prove productive for tree-growing," he says.

Tracing wood through time

In his leisure hours, the forester enjoys a little investigating with tree rings, too. He probes the countryside pinpointing the construction dates of centuries-old homes and barns.

"It's called cross-dating. The idea is to recognize replicated patterns in tree rings, and identify the years when they were formed. These become signatures," he says. "Cross-dating is finding

To obtain rings for reading, a researcher bores into the center of a tree with a hollow ¼" auger bit.

matches for those signatures in different wooden artifacts, such as a building. For instance, if you know that a certain pattern was formed in one species of tree in a region only between 1850 and 1855, then every time you see that pattern in an artifact of that species, such as a rafter or beam, you know when the wood was produced. It's like a fingerprint.

"In a 100 years of tree rings," Paul continues, "you might have three or four such definitive signatures [see illustration, *right*]. When you find one of those signatures, say the one for 1850–1855, you count back the number of years to where you expect to find the next signature, and if you locate it, then you know that you have a time-match. It's a detective type of thing."

New clues through tree rings

The same clue-seeking with tree rings has resulted in the rewriting of history books. It was the tree rings of ancient bristlecone pines, for instance, that helped archaeologists accurately date the construction of 1,000-year-old pueblos in Arizona and New Mexico. In Europe, tree-ring experts have traced the origins of buildings and artifacts back as far as 193 B.C. Even paintings on wood, carvings, and musical instruments can be authenticated by finding tree-ring chronologies.

Scientists also rely on tree rings to date past volcanic eruptions and earthquakes in order to predict their reoccurrence. And, by correlating variations in tree rings with weather records, then applying the information back through time, climatologists chart global environmental change and the effects of air-pollution. Says researcher Phipps, "I'm convinced that there are things we could do with trees and tree rings that we haven't even thought about."

Written by Peter J. Stephano
Illustration page 63, Jim Stevenson
Photographs: Ripon Microslide; Richard Phipps, U.S. Geological Survey

Print this article

CASUAL

A DISTINCTIVE AND DURABLE

Last issue we promised you plans for a table to match those good-looking mahogany chairs. Well, here they are. This 48" table, with its mortise-and-tenon joinery and a top featuring splined miter joints, will serve you for years to come.

You say you don't have the issue explaining how to make those mahogany chairs? No problem! For a copy of the plans, send $2 and a self-addressed business-sized envelope, along with 29¢ postage to What a Chair!, P.O. Box 11454, Des Moines, IA 50336-1454.

***Note:** If you plan to use the table outdoors, use either slow-set epoxy or resorcinol glue.*

Start with the legs

1 Laminate thinner stock face to face to form the 3³⁄₁₆"-square legs. (We cut three pieces of 1¹⁄₁₆"-thick stock to 3³⁄₈" wide by 29" long. Then, we glued and clamped the pieces with the edges and ends flush. After scraping off the excess glue from one edge, we planed that edge smooth and then ripped the opposite edge for a 3³⁄₁₆" finished width. Finally, we crosscut the legs to length.)

2 Following the four steps on the Mortise detail accompanying the Exploded View drawing, form the mortises on two adjoining faces of each of the four legs.

3 Cut or rout ¼" chamfers along the bottom end of each leg.

CLASSICS II

MAHOGANY TABLE

Add the tenoned aprons

1 Rip and crosscut the four aprons (B) to size (1 1/16 × 3 × 34 1/4").

2 Cut the tenons to size on each end of each apron—see the Tenon detail for reference. (To cut the tenons, we mounted a dado blade to our tablesaw and attached a long auxiliary fence to our miter gauge to support the legs when cutting the tenons.)

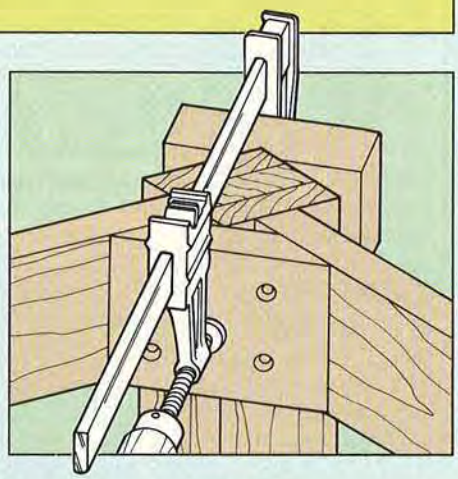
3 Dry-fit the tenons in the mortises to check the fit. Spread slow-set epoxy (see the Buying Guide for our source) on the mating surfaces and clamp one apron between two legs. With a framing square, check that the legs are square to the apron. Wearing vinyl gloves, immediately wipe off excess epoxy with a clean cloth dampened with acetone. Acetone will remove uncured epoxy. Repeat with another apron.

Epoxy two aprons between the two leg/apron assemblies to complete the base. Again, check that the legs are square to the aprons.

4 Cut the four corner braces (C) to size, mitering the ends at 45°. Viewing the Corner detail accompanying the Exploded View drawing for reference, drill and countersink four mounting holes in each corner brace.

5 Cut a V-shaped notch in four 4"-long pieces of 2 × 4. As shown in the drawing *above right*, epoxy and clamp each corner brace in place. Wipe off any excess epoxy.

6 Using the previously drilled holes in the braces as guides, drill 1/8" pilot holes 1/2" into the aprons where shown on the Corner detail on the next page. Drive #10 × 1 3/4" screws through the braces and into the aprons to further strengthen the joint.



7 Cut the cleats (D) to size. Drill and countersink four mounting holes in each cleat. With the top edges flush, screw them to the aprons (B).

Now, let's build and assemble the tabletop

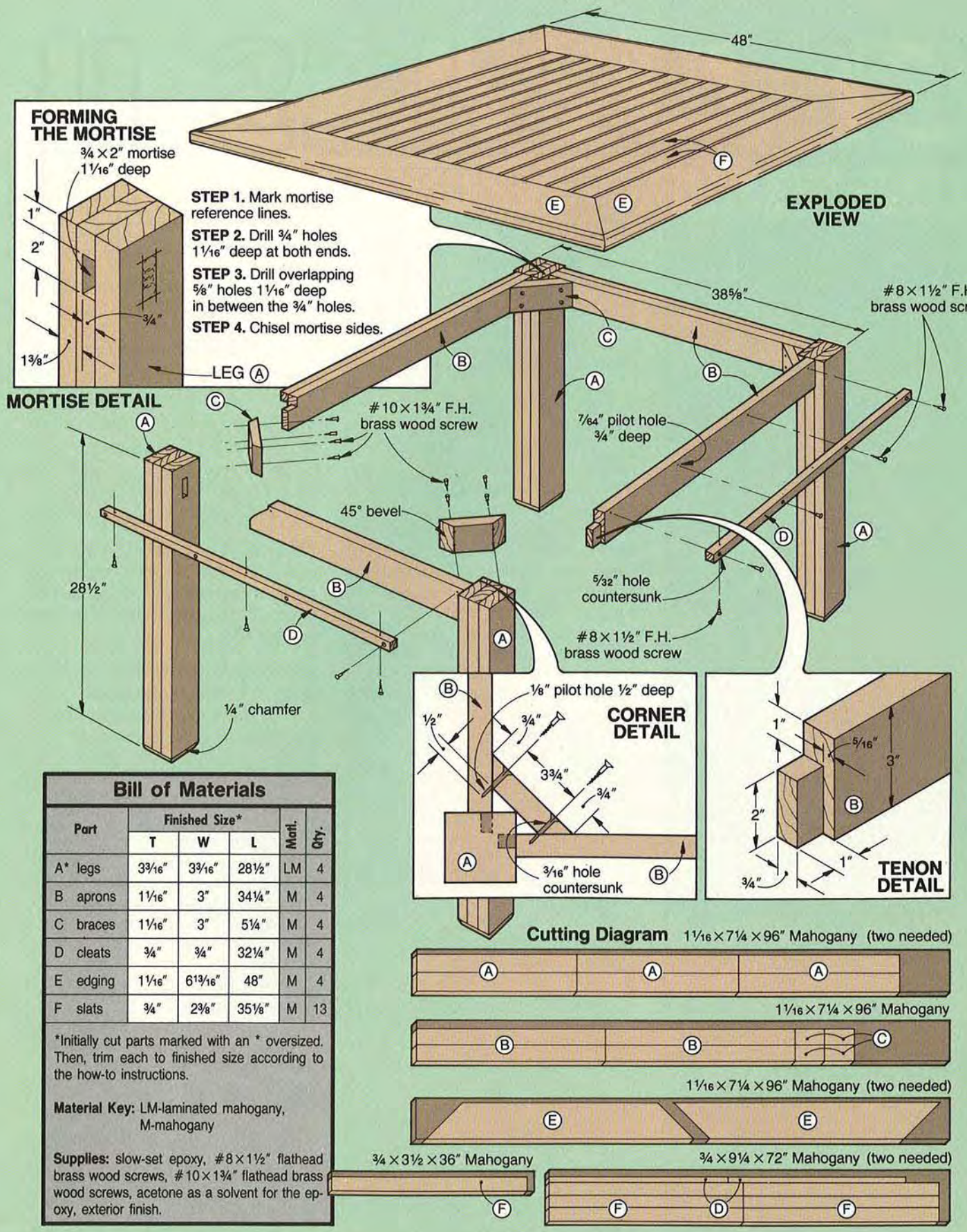
1 Cut the edging pieces (E) to size, mitering the ends at 45°.

2 Cut or rout a 3/8" groove 3/8" deep 3/8" from the top surface along the inside edge of *two* pieces of the edging.

3 Fit your router with a 1/4" slotting cutter. Viewing the Spline and Slot details accompanying the Tabletop drawing and the photo on *page* 67 for reference, rout a pair of 1/4" slots 1/2" deep in each mitered end of each edging piece.

4 From 1/4" stock (we resawed thicker stock), cut eight pieces to 7/8 × 8 1/4" for the splines. Before cutting, note the direction orientation in the photo. If the grain runs the length of the spline, the spline will have a tendency to split when the edging expands. Now, cut or sand the ends of each spline to the shape shown on the full-sized Spline pattern. Set the splines aside for now.

Continued



Bill of Materials

Part	Finished Size* T	W	L	Matl.	Qty.
A* legs	3 3/16"	3 3/16"	28½"	LM	4
B aprons	1 1/16"	3"	34¼"	M	4
C braces	1 1/16"	3"	5¼"	M	4
D cleats	¾"	¾"	32¼"	M	4
E edging	1 1/16"	6 13/16"	48"	M	4
F slats	¾"	2⅜"	35⅛"	M	13

*Initially cut parts marked with an * oversized. Then, trim each to finished size according to the how-to instructions.

Material Key: LM-laminated mahogany, M-mahogany

Supplies: slow-set epoxy, #8×1½" flathead brass wood screws, #10×1¾" flathead brass wood screws, acetone as a solvent for the epoxy, exterior finish.

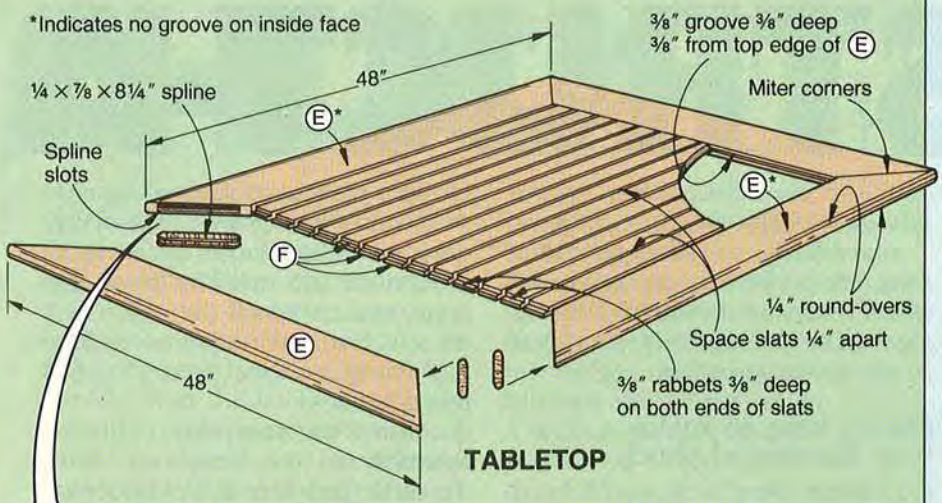
Cutting Diagram 1 1/16×7¼×96" Mahogany (two needed)

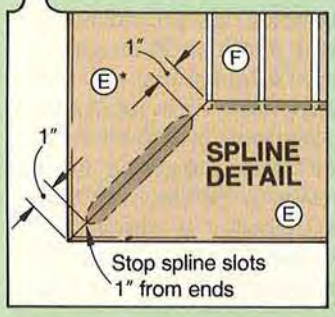
1 1/16×7¼×96" Mahogany

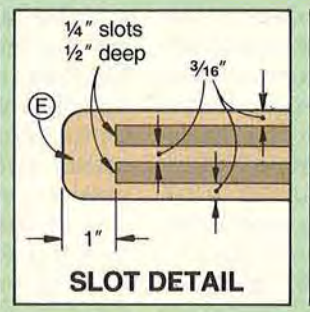
1 1/16×7¼×96" Mahogany (two needed)

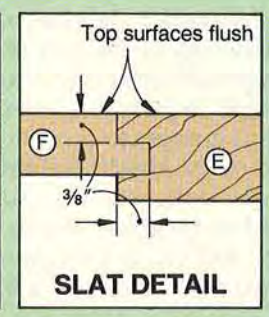
¾×3½×36" Mahogany

¾×9¼×72" Mahogany (two needed)

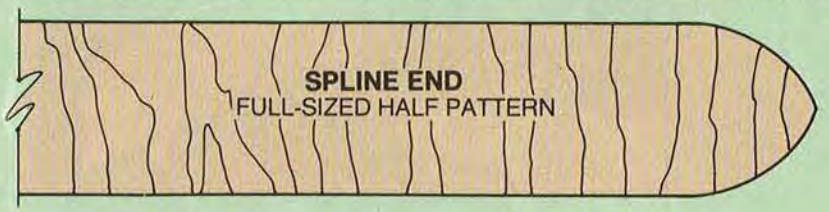

*Indicates no groove on inside face
¼ × ⅞ × 8¼" spline
48"
Spline slots
⅜" groove ⅜" deep ⅜" from top edge of E
Miter corners
¼" round-overs
Space slats ¼" apart
⅜" rabbets ⅜" deep on both ends of slats
48"
TABLETOP







Rout a pair of slots and cut a pair of splines for each mitered corner joint.



5 Cut 13 slats (F) to the size listed in the Bill of Materials.
6 Cut or rout a ⅜" rabbet ⅜" deep across both ends of each slat.
7 Dry-clamp the tabletop parts (including the splines) to check the fit. Trim if necessary.
8 Brush epoxy on all mating surfaces and splines, and clamp the tabletop assembly (E, F, and splines), checking for square. Wipe off excess epoxy with an acetone-dampened cloth. (To space the slats ¼" apart, we used pieces of ¼" dowel stock as spacers.)
9 Sand the top of the tabletop smooth and flush.
10 Rout ¼" round-overs along the outside edges of the tabletop.

Sand and finish

1 Finish-sand the base and tabletop. Stain and finish. (We left the wood natural. For the first coat of finish, we sprayed on spar varnish—reduced with mineral spirits 25 percent. Later, we lightly sanded with 320-grit sandpaper, and then applied a second and later a third coat full strength.)

To prolong the life of the finish, store the table and chairs indoors over the winter months. Also, if you happen to dent or scratch the finish, touch-up the blemish with spar varnish to prevent moisture from getting under the finish.

2 Set the tabletop upside down on a blanket. Secure the tabletop to the base with #8 × 1½" flathead brass wood screws threaded through the cleats (D).

Buying Guide

• **Tropical hardwood epoxy.** Slow-set epoxy, one 16-oz. can of resin, one 16-oz. can of hardener, and instructions. $27 ppd. Smith & Co., 5100 Channel Ave., Richmond, CA 94804. Or, call 800-234-0330 to order.

Produced by Marlen Kemmet
Project Design: James R. Downing
Photographs: Hopkins Associates
Illustrations: Kim Downing; Mike Henry

CONSTRUCT-A-

Equipping a high-school wood shop on a limited budget can be tough. And, buying lathe chucks, often costing as much as $200, is almost out of the question. To solve this problem, Dave Hout, an industrial arts teacher at Coventry High School in Akron, Ohio, decided to make his own chuck.

Note: *To prevent the completed chuck from distorting after turning it to final shape, select a piece of kiln-dried, dense hardwood such as cherry or maple.*

For added holding strength in securing the wood chuck to the metal faceplate, you may want to drill three additional mounting screws through the 3" faceplate and into the chuck. Then, secure with an additional three screws.

And finally, to ensure that the faceplate remains centered on the chuck, Dave recommends leaving the chuck permanently attached to the metal faceplate.

Here's how to make your hardwood chuck

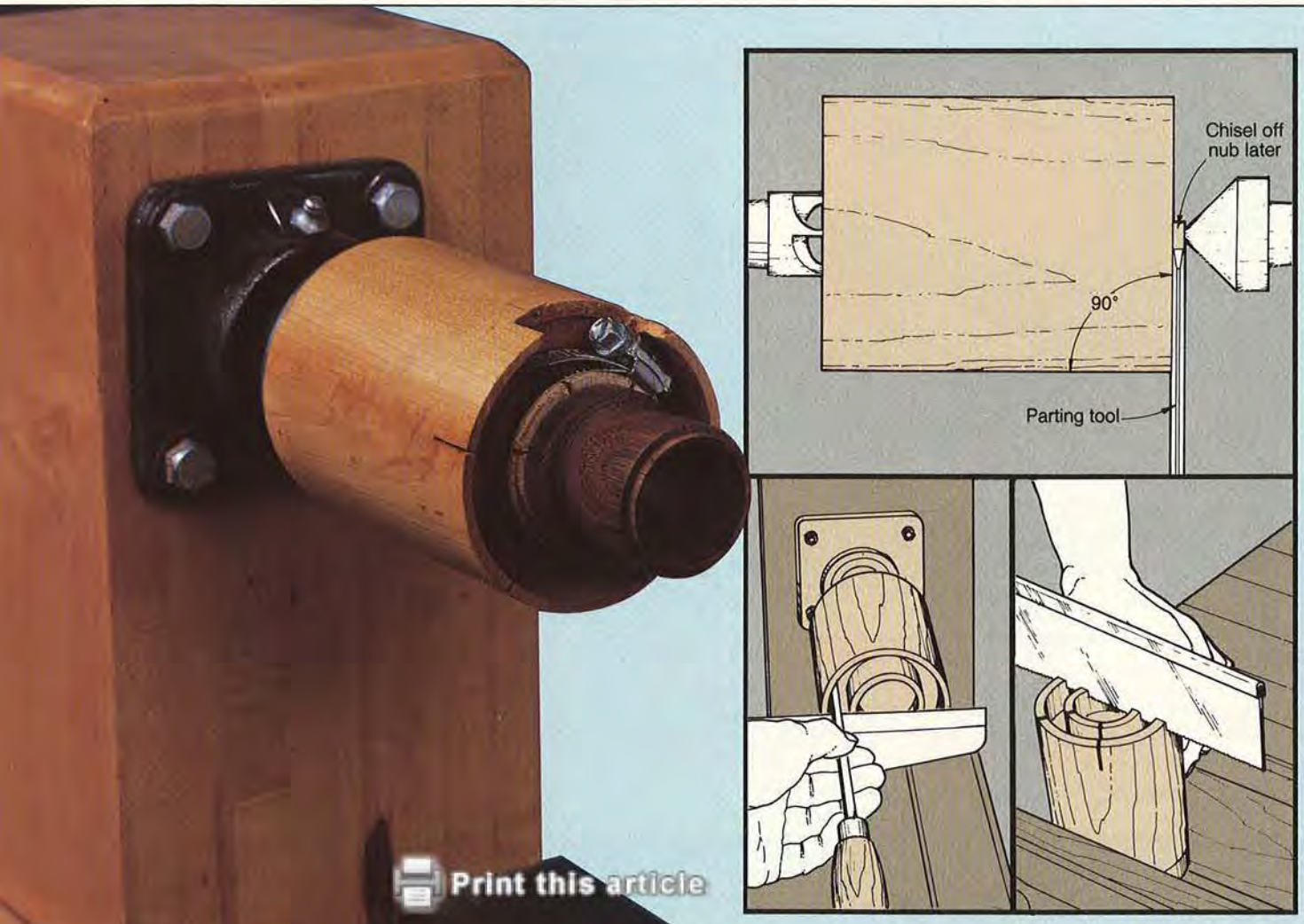
1 To make the chuck, you'll need a 3½"-square laminated or solid hardwood block that measures 4" long. Crosscut the ends of the block square. Draw diagonals from corner to corner on each end of the block, and mount it between centers on your lathe.

2 At a speed of about 800 rpm, turn the block round to a diameter of 3⅜" (we used a ½" gouge). Using a parting tool, turn the tailstock end flat (square to the cylinder) where shown on drawing A.

3 Remove the cylinder from the lathe, and chisel off the nub. Center and fasten the squared end to a 3" faceplate (we used 1" sheet metal screws).

4 Mount the faceplate/cylinder assembly to the headstock. Start the lathe and turn the cylinder to a 3¼" diameter. Turn the tailstock end flat for a 3" finished length.

5 Using the dimensions on the full-sized End View drawing, pencil in the locations of the two recesses. Then, with a parting tool, turn the recesses ⅝"-deep in the end of the cylinder as shown in drawing B. When making the final cuts to form the ⅛"-thick



Print this article

CHUCK THE FRUGAL MAN'S LATHE ACCESSORY

inner-jaw wall, hold the parting tool square to the end of the cylinder. For a secure grip on turning projects later, the inner-jaw wall must be perpendicular to the end of the cylinder.

6 Remove the faceplate/chuck assembly from the lathe, and clamp it into a woodworker's vise as shown in drawing C. Use a backsaw to cut three ⅝"-deep kerfs at 60-degree intervals through the center of the chuck's end where shown on the End View drawing.

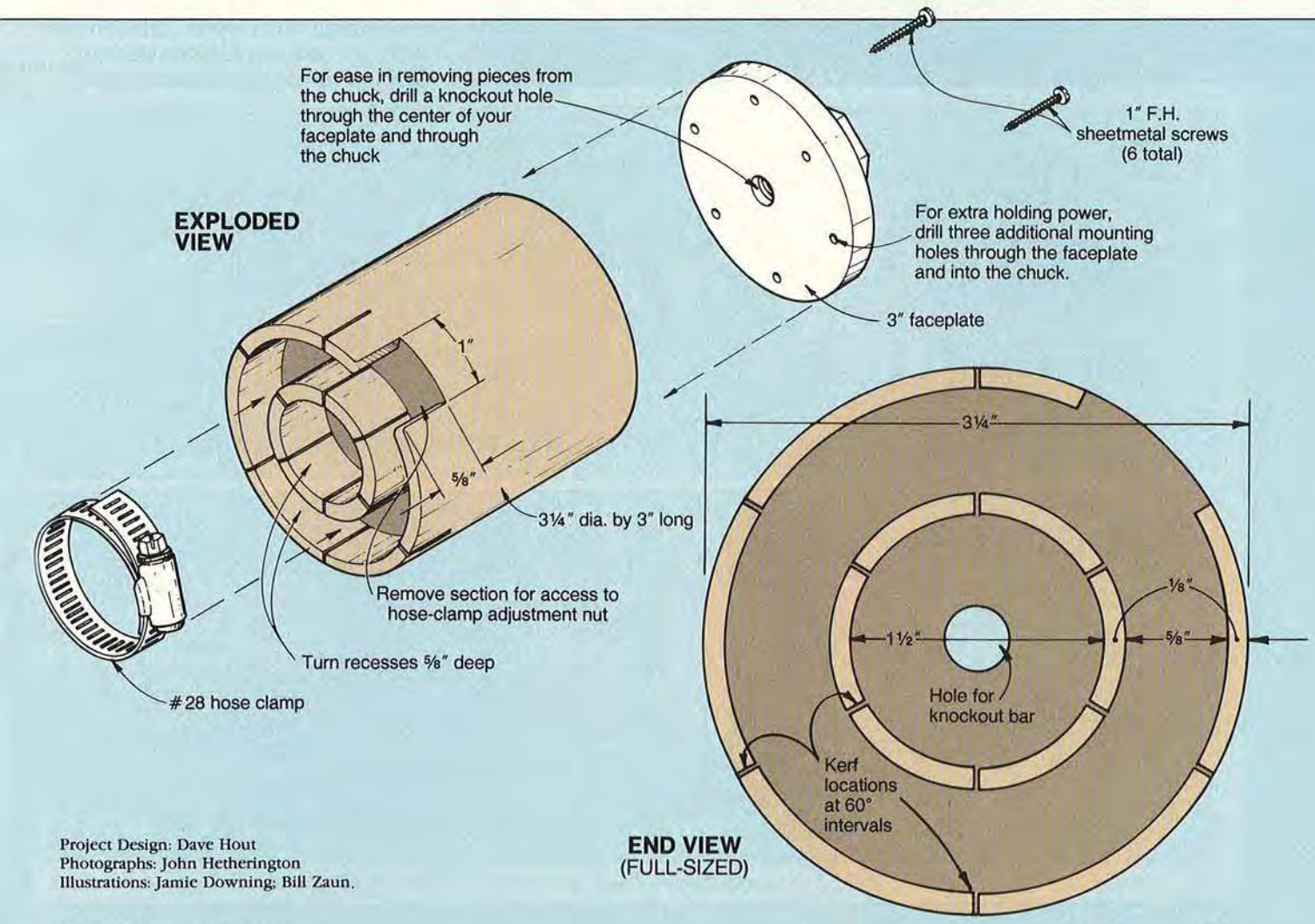
7 Remove a 1"-long section in the outer wall for later access to the hose-clamp adjustment nut. (To do this, we securely fastened the assembly in a large handscrew clamp, chucked a ⅜" Forstner bit into our drill press, and drilled away 1" of the ⅛" outer wall on one side of a kerf. Then, clean the drilled edge with a chisel.)

8 For ease in removing turnings from the chuck later with a knockout bar, drill a hole through the center of your faceplate and through the center of the chuck. A knockout bar allows you to push the turning out of the chuck. Trying to pull or twist a project out of the chuck may cause the turning to break. (Our knockout bar measures ⅜" in diameter, so we drilled a 7/16" hole.)

Tips on how to use your chuck

Mount your workpiece between centers, and turn a 1½"-diameter tenon ⅜" to ½" long to fit *snugly* in the chuck. Stop the lathe frequently to check the fit of the tenon in the recess. Square the surface of the workpiece that fits against the end of the chuck. *Optimum grip is obtained with a tight fit of the tenon in the chuck and flush mating surfaces.*

Next, slip on a #28 hose clamp. Insert the tenoned end of the workpiece into the interior recess. Now, with a screwdriver or hexagonal nut driver, tighten the hose clamp to secure the workpiece. To prevent the turning from coming out of the chuck, take light cuts with your turning tool. As with any chuck, taking large cuts or pressing too hard with a scraper can dislodge the turning from the chuck.


For ease in removing pieces from the chuck, drill a knockout hole through the center of your faceplate and through the chuck
1" F.H. sheetmetal screws (6 total)
EXPLODED VIEW
For extra holding power, drill three additional mounting holes through the faceplate and into the chuck.
3" faceplate
1"
⅝"
3¼" dia. by 3" long
Remove section for access to hose-clamp adjustment nut
Turn recesses ⅝" deep
#28 hose clamp
3¼"
⅛"
1½"
⅝"
Hole for knockout bar
Kerf locations at 60° intervals
END VIEW
(FULL-SIZED)

Project Design: Dave Hout
Photographs: John Hetherington
Illustrations: Jamie Downing; Bill Zaun.

LATHE-

Be prepared to hear, "How did you do that?" when you show off this nifty hollow-egg container. Our secret (and now it's yours) lies in the use of the handy, home-made lathe chuck featured on the previous two pages.

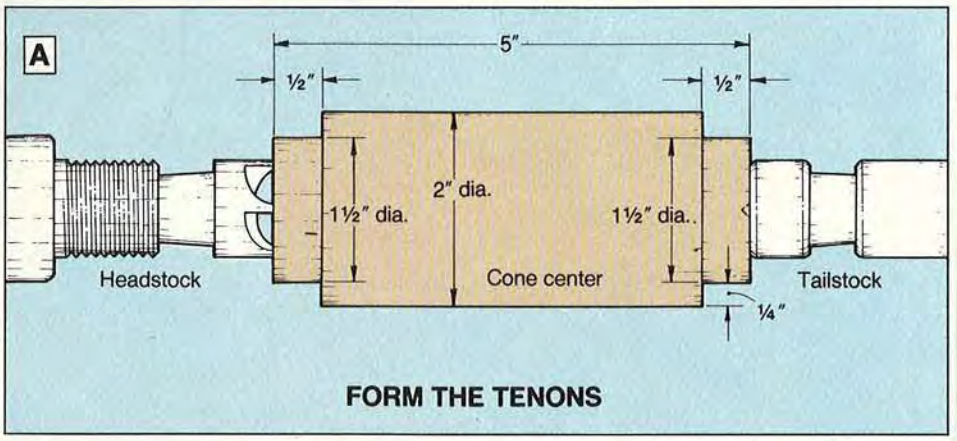
A new spin on an old turning favorite

Print this article

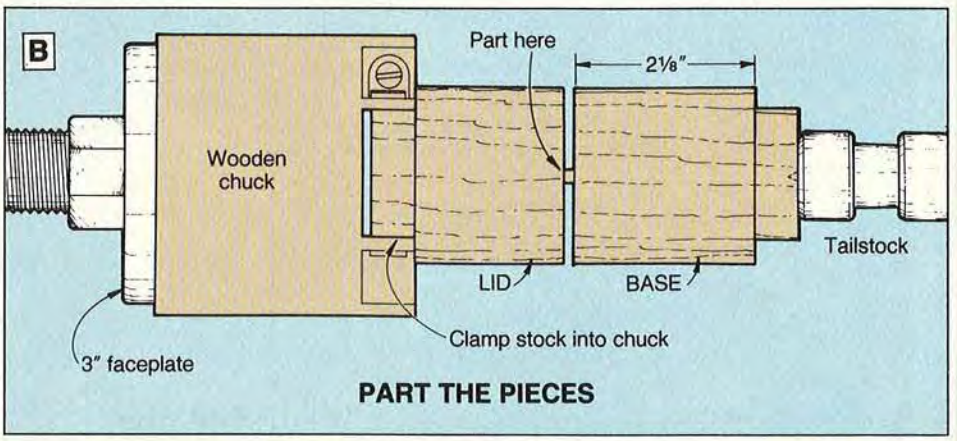
OK, let's get going

1 Start with a 2½"-square block of hardwood 5" long. If you don't have a kiln-dried turning square this size, laminate thinner stock.

2 Draw diagonals from corner to corner on each end, and mount the block between centers on your lathe. At a speed of about 800 rpm, use a gouge or skew to turn the block to a diameter of 2".



FORM THE TENONS



PART THE PIECES

-LAID EGGS

3 As shown in figure A, turn a ½"-long tenon on each end to a diameter that will fit *snugly* into your homemade chuck. Our tenons measured 1½" in diameter; yours may differ slightly. (We used an outside calipers to measure the diameter, and frequently removed the block to test-fit the tenons in the chuck.)

Now, you're ready to form the lid and base

1 Remove the cylinder from between centers, fit one tenoned end into your homemade chuck, and tighten the hose clamp to secure it. Move the tailstock into position, centered on the opposite end. Now, use a parting tool to cut the workpiece in two where shown in figure B. Set aside the half closest to the tailstock; you'll use this later for the base. Back the tailstock away from the workpiece.

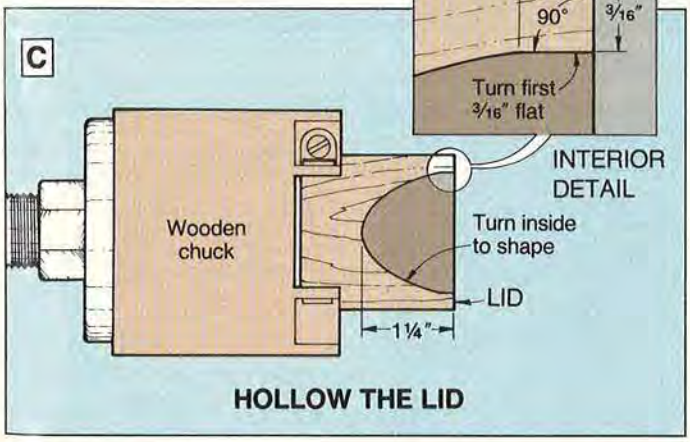
2 Hollow the lid to the shape shown in figure C. (We used a ⅜" gouge and a round-nosed scraper.) For a tight fit against the base later, turn the first 3/16" of the interior flat where shown on the Interior detail. Sand smooth, being careful not to round the flat area. Add the finish to the lid interior.

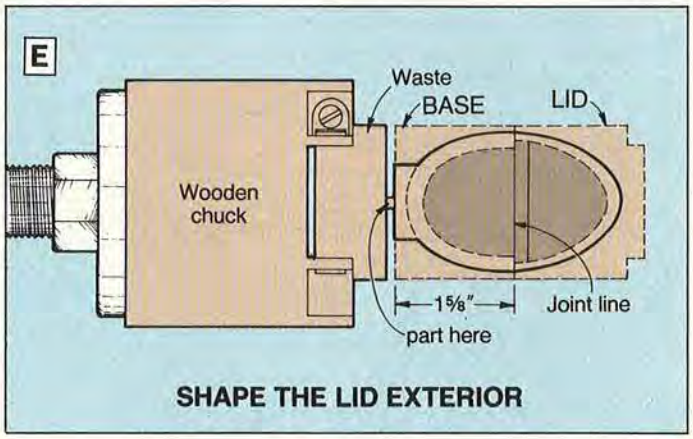
3 Fit the base tenon into the chuck, and use a parting tool or a square-end scraper to form a 3/16" rabbet that will fit snugly into the lid interior where shown in figure D. Make light cuts to avoid removing too much material and making the rabbet too small, which would result in a sloppy fit. (We stopped frequently to test-fit the lid on the base.) Then, hollow the base interior to the shape shown in figure D.

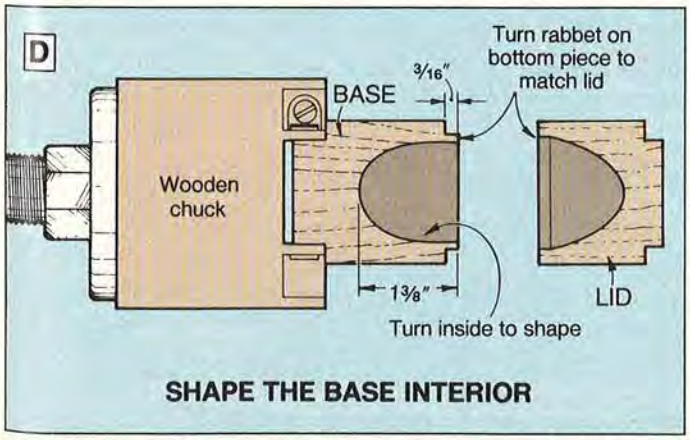
4 Fit the lid firmly onto the base where shown in figure E. Turn the lid exterior to shape, sand smooth on the lathe, and add the finish. Pull the lid from the base and set it aside.

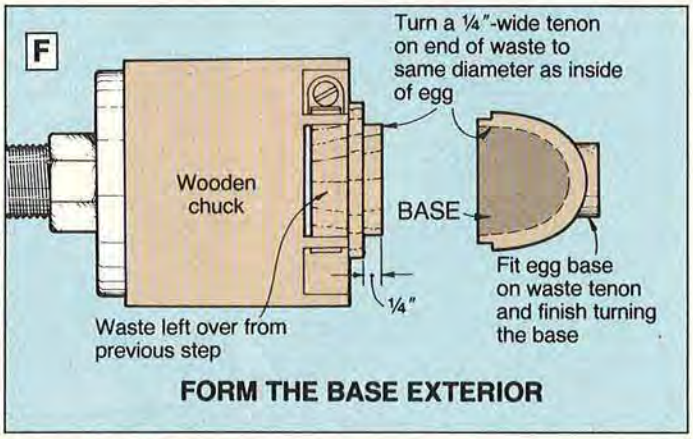
5 Shape a portion of the base exterior to the shape shown in figure E. Part the base from the chuck where shown.

6 On the waste piece left in the chuck, turn a tenon to fit snugly inside the base piece where shown in figure F. Fit the base onto the waste piece and finish turning the base to shape. Sand smooth and add the finish.



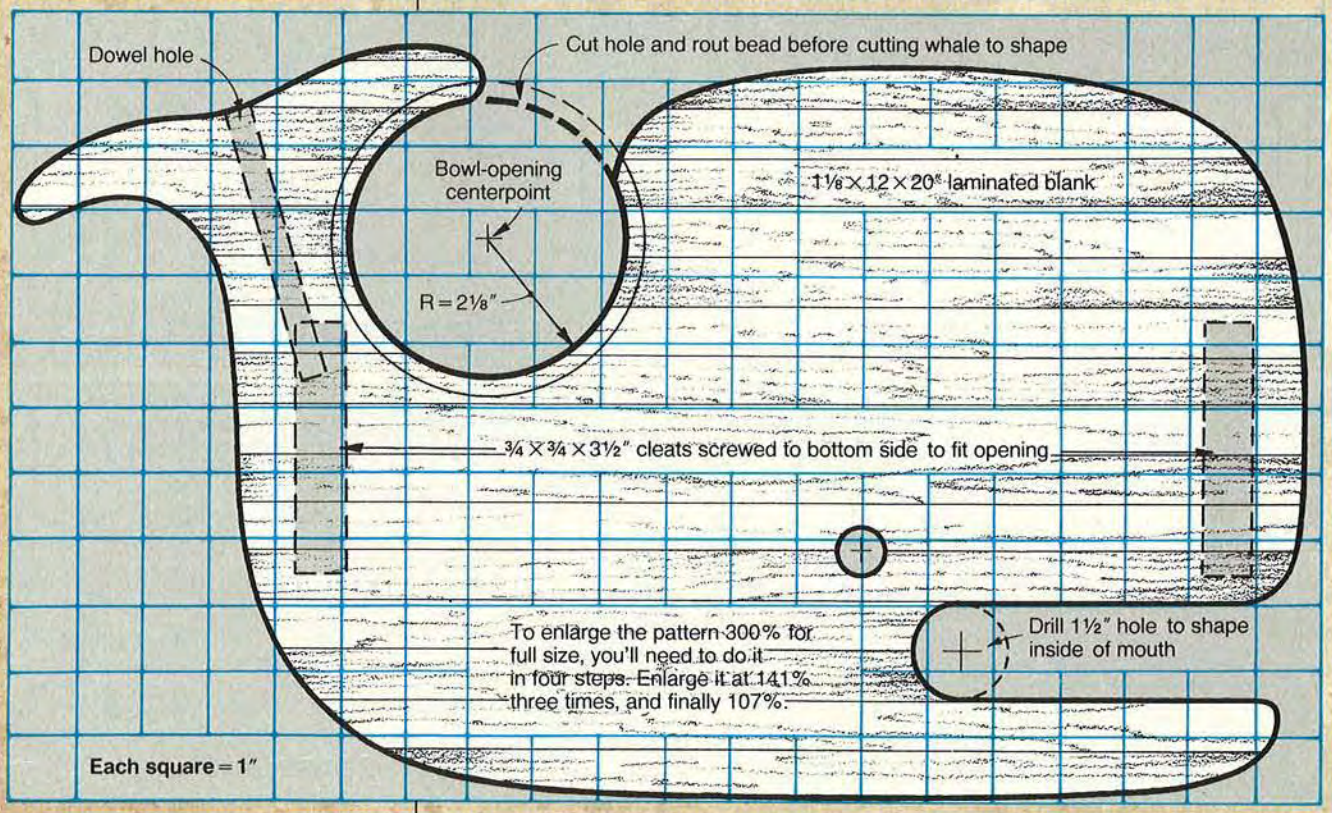





F
Turn a ¼"-wide tenon on end of waste to same diameter as inside of egg
Wooden chuck
BASE
¼"
Fit egg base on waste tenon and finish turning the base
Waste left over from previous step
FORM THE BASE EXTERIOR

Project Design: Dave Hout Photograph: Hopkins Associates Illustrations: Kim Downing; Bill Zaun

ONE WHALE


Dowel hole
Cut hole and rout bead before cutting whale to shape
Bowl-opening centerpoint
R = 2⅛"
1⅛ × 12 × 20" laminated blank
¾ × ¾ × 3½" cleats screwed to bottom side to fit opening
To enlarge the pattern 300% for full size, you'll need to do it in four steps. Enlarge it at 141% three times, and finally 107%.
Drill 1½" hole to shape inside of mouth
Each square = 1"

Print this article

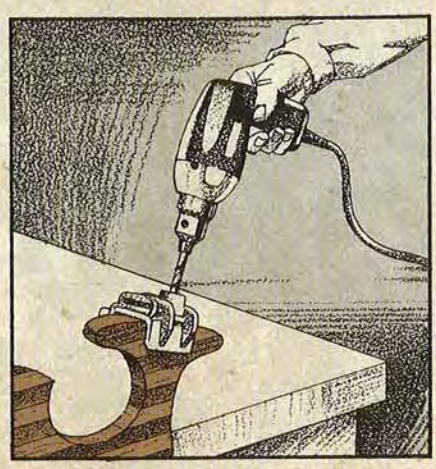
# of a cutting board

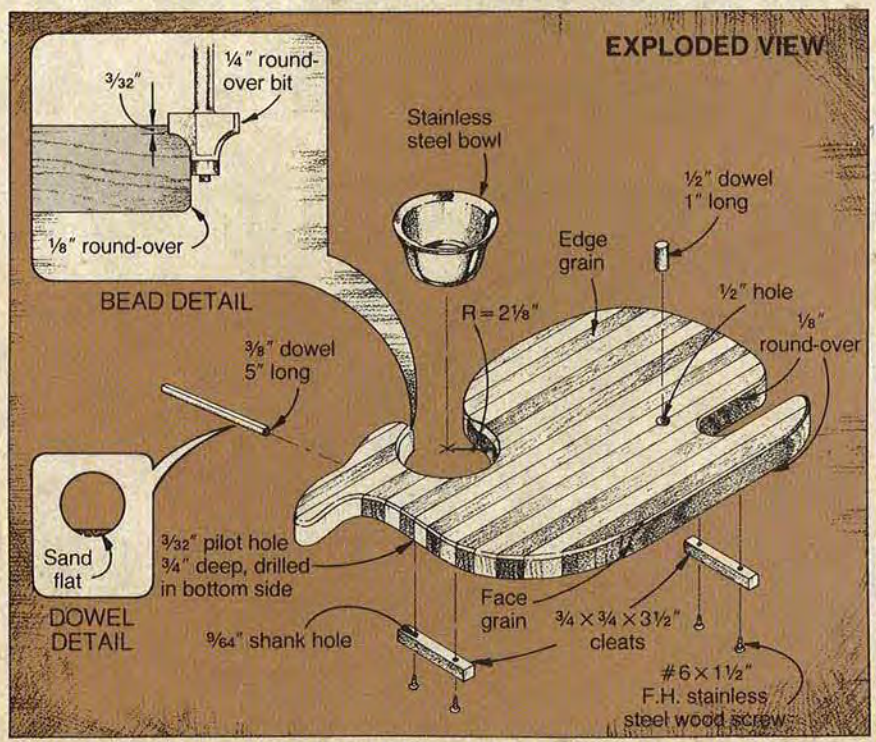
Rip and crosscut 16 pieces of ¾"-thick maple to 1⅛" wide by 20" long. Glue and clamp the pieces face-to-face, with the edge grain facing up and with the edges and ends flush. (We used woodworker's glue.) After the glue dries, remove the clamps, and scrape off the excess glue. Sand the surfaces of the cutting board.

Create a full-sized pattern by redrawing the whale on a 1" grid or enlarging it 300 percent on a photocopier. Or, order our full-sized pattern; see the offer *below right*. Transfer the pattern including the bowl, eye, and mouth centerpoints, onto your lamination.

To cut the bowl opening to shape, you can either use a circle cutter mounted in your drill press or a bandsaw. *Be sure to test-cut a hole and rout the bead in scrap first to verify the fit of the stainless-steel bowl in the opening.* Using the Bead detail for reference, rout a bead along the top inside edge of the bowl opening.

Drill the mouth opening and eye hole through the lamination.





(We first drilled a 1½" hole and then cut to it to form the mouth.) Bandsaw the rest of the whale outline to shape, and sand the cut edges to remove the saw marks. To strengthen the tail portion of the whale, use a doweling jig and drill a ⅜" hole into the tail as shown in the drawing *left*. Remove the jig and drill as deeply as you can into the tail section. Cut a ⅜" dowel to 5" long. Sand a flat surface along the dowel where shown in the Dowel detail to allow excess glue and air to escape when driving the dowel into the hole. Tap the dowel into the hole just drilled. Trim the end of the dowel flush with the edge of the tail; sand smooth. Glue a ½" dowel in the eye hole. Rout a ⅛" round-over along all edges *except* the beaded bowl opening.

Cut a pair of cleats to ¾ × ¾ × 3½". Using stainless steel screws, fasten the cleats to the bottom of the cutting board to prevent the board from moving when placed over the sink opening. Sand smooth, and apply several coats of finish. (We used Behlen's Salad Bowl Finish.)

Buying Guide

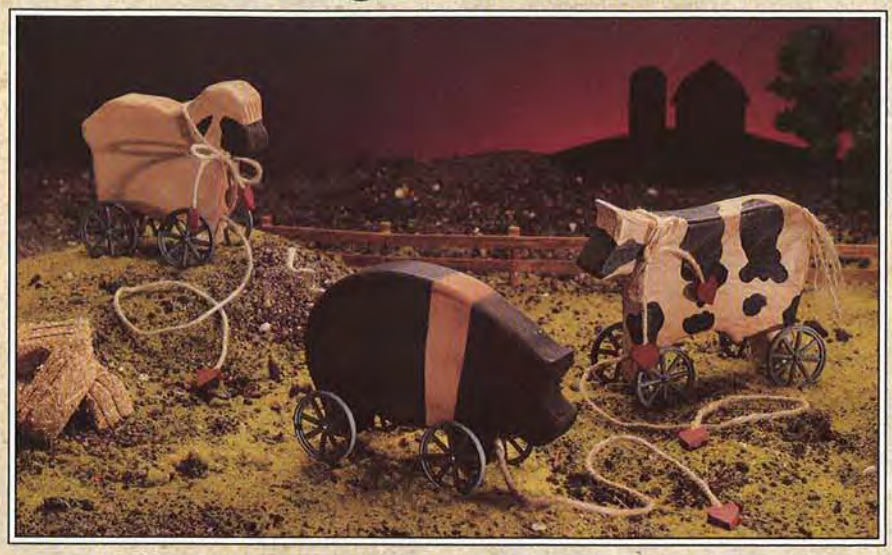
- **Bowls.** Three stainless steel bowls, catalog no. 47522, $9.95 ppd. Sorensen Equipment Co., 2012 Cottage Grove Ave., Des Moines, IA 50312.
- **Behlen's Salad Bowl Finish.** One pint, $9 ppd. ($12 U.S. funds for Canadian orders), catalog no. 85006, Armor Products, Box 445, East Northport, NY 11731.

For a full-sized pattern, send $1 (U.S.) and a self-addresed, stamped, business-sized envelope to: Whale Cutting Board
P.O. Box 11454
Des Moines, IA 50336-1454.

Project Design: A. J. Hand Photograph: John Hetherington Illustrations: Jamie Downing; Jim Stevenson

FARMYARD FAVORITES
on a string

Print this article



Using carbon paper or photocopies and spray adhesive, transfer the full-sized patterns, axle-hole centerpoints, and pull-string and tail reference lines to 1½"-thick stock (we used a 2' length of a fir 2×6). Drill a ⅜" axle hole through each marked centerpoint. Bandsaw the animals to shape. Drill a ⅛" pull-string hole in all three animal shapes, and a ⅛" tail hole in the cow and pig only.

Rout a ¼" round-over along all but the bottom edges of the feet of each animal. Sand the cut and routed edges.

Cut a pair of ⅜" dowels to 2½" long for the axles for each animal. Hold each dowel upright in a handscrew clamp, and drill a 5/64" pilot hole ½" deep centered in each end. Glue the axle dowels in place, centered from side to side. Resaw thicker stock to ¼" thick for the hearts. Transfer the full-sized heart patterns to the ¼" stock. Cut the hearts to shape and sand smooth. Drill a ⅛" hole ⅜" deep in each heart.

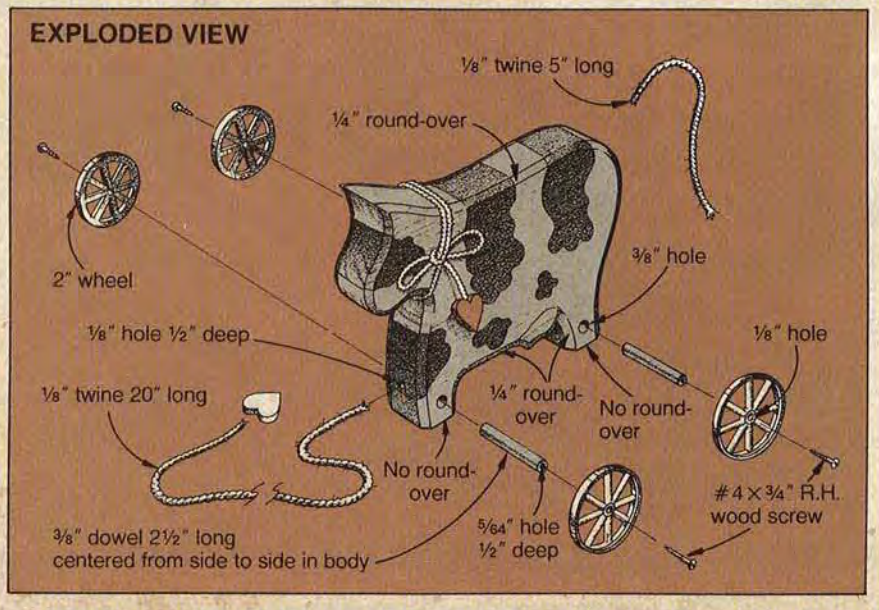
Paint each animal white with a wash coat to allow some grain pattern to show through. Using the photo *above right* for reference, paint the black areas with an acrylic. For the aged look, wipe stain on each animal cutout and immediately wipe off most of the stain. For a worn appearance, lightly sand the edges with 220-grit sandpaper.

Drill a ⅛" hole in the center of each spoked wheel (see the Buying Guide for our source). Soak the wheels in vinegar overnight to dull the finish. Now, using #4×¾" roundhead wood screws, fasten the wheels to each animal.

Cut the tails, pull strings, and neck cords to length from ⅛" twine. Glue a heart to both ends of the neck twine and one end of the pull string. Then, attach the twine to the animals.

Buying Guide

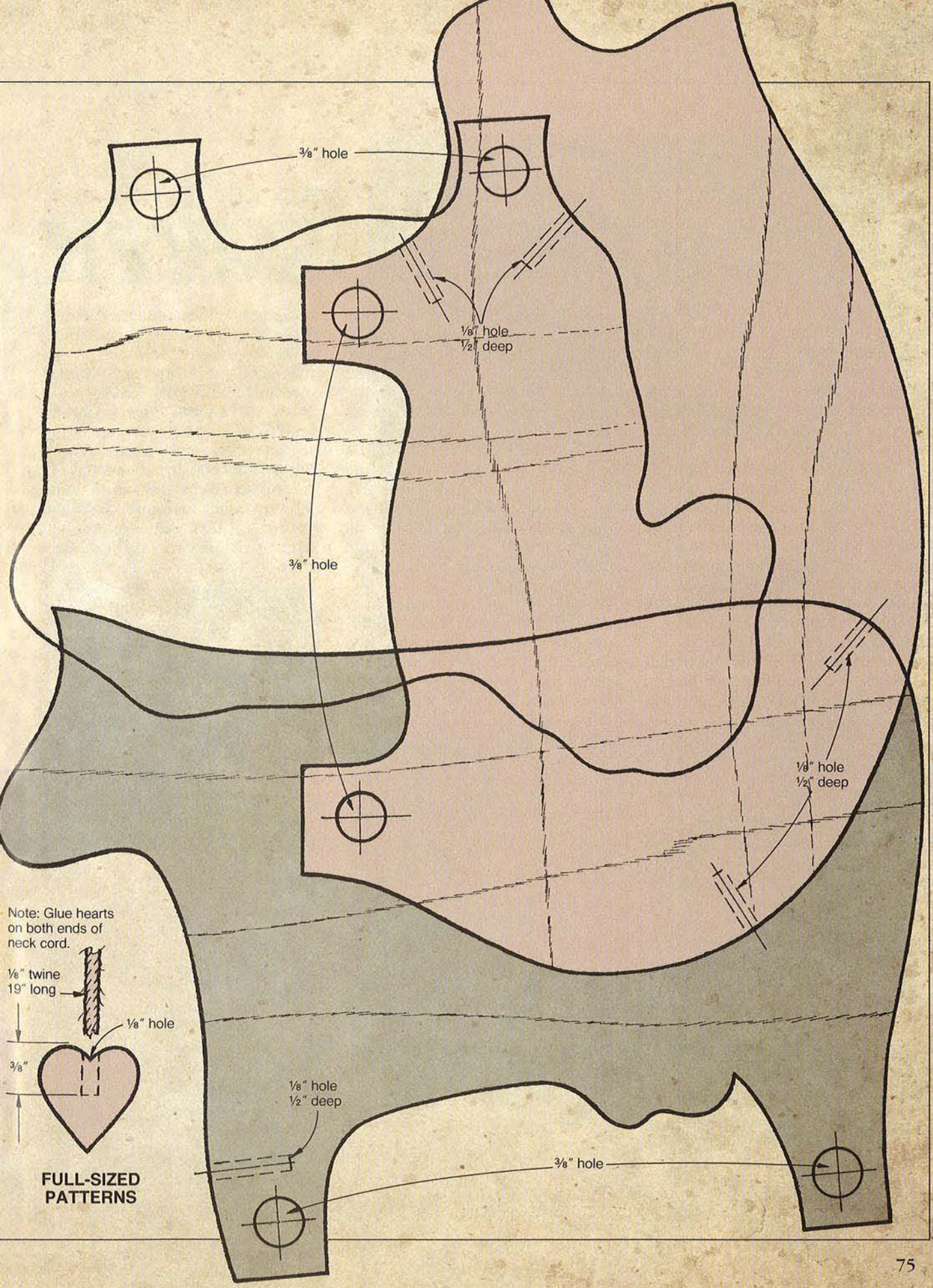
• **Wheels and screws.** One dozen metal die-cast spoked wheels and mounting screws. $10.50 ppd. Wood-N-Wonders, P.O. Box 656, St. Paris, OH 43072.



Project Design: Vickie Rush

Photographs: Hopkins Associates

Illustrations: Jamie Downing; Jim Stevenson



FULL-SIZED PATTERNS

Print this article

They won't leave home without it

LADIES' COSMETIC

Cut one piece of ⅜" stock to 4" wide by 12" long. (See the drawing *below* for the method we used to resaw thicker stock.) Cut the material into two pieces that measure just under 6" long. Stick the two pieces together face-to-face with carpet tape.

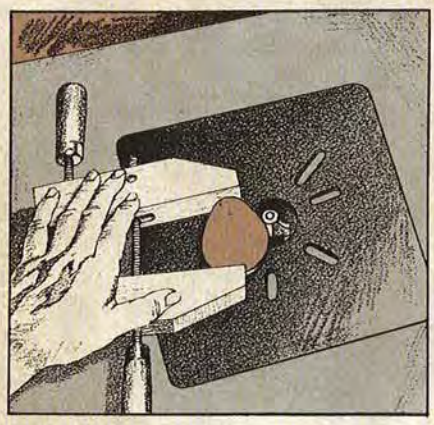
Transfer the full-sized pattern and 2" circle location to one of the pieces of stock. Chuck a 2" Forstner bit into your drill press, centering the bit over the marked circle. (See the Buying Guide for our source of bits.) Clamp the stock to the drill-press table. Using a speed of about 250 rpm, bore a 3⁄16"-deep hole into the stock.

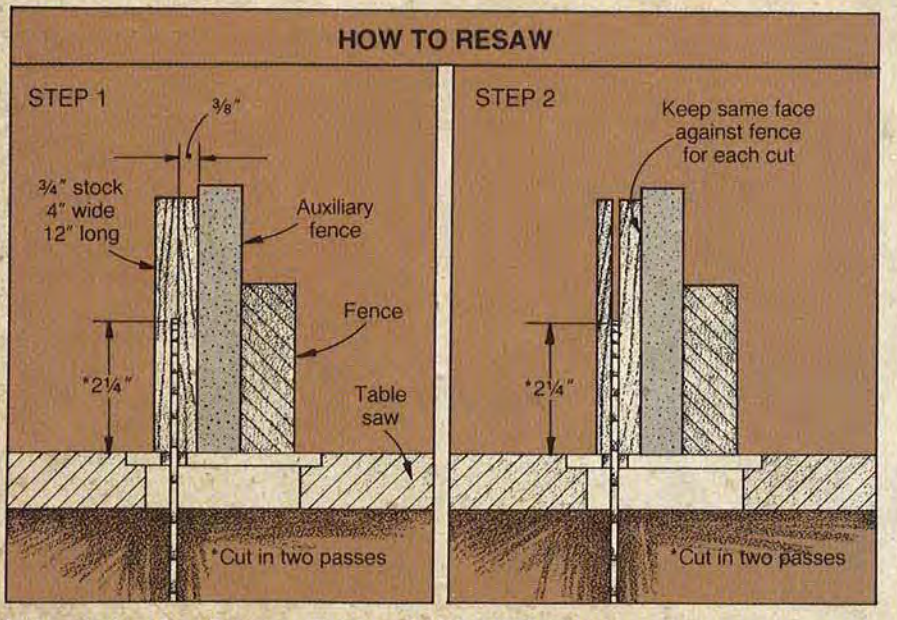
Bandsaw just outside the pencil line on the taped-together pieces. Sand to the line to complete the teardrop shape (we used a disc sander). With a wooden wedge, pry the pieces apart and remove the tape. Mark an X on the face *opposite* the 2" hole.

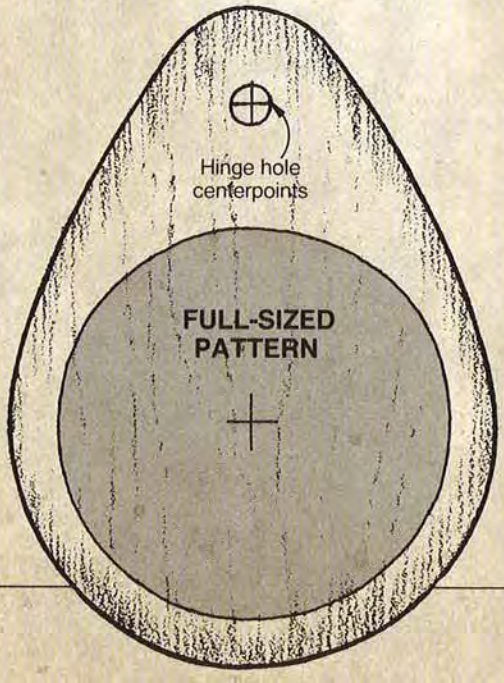
Adhere the pieces with carpet tape, making sure that the edges are flush and that the 2" hole is facing in. Locate and mark the hinge-hole centerpoint on the face marked with an X. Drill the plug, shank, and pilot holes to the dimensions shown on the Hinge detail. Pry the pieces apart and remove the tape.

Grind ⅛" off the end of a #6×½" sheet-metal screw. With the edges flush, fasten the two pieces tightly together with the screw and washer. Resand the edges flush. Rout a ¼" round-over along the edges of both pieces. For safety, support the assembled holder as shown *below*.

Remove the screw and washer, and finish-sand both pieces. Add finish to just the *inside face* of each piece. Using a stick pin, place a drop of epoxy or instant glue in the pilot hole, and fasten the pieces with the screw and washer. Later, open and close the holder to test the movement. Slightly loosen or tighten the screw if necessary.







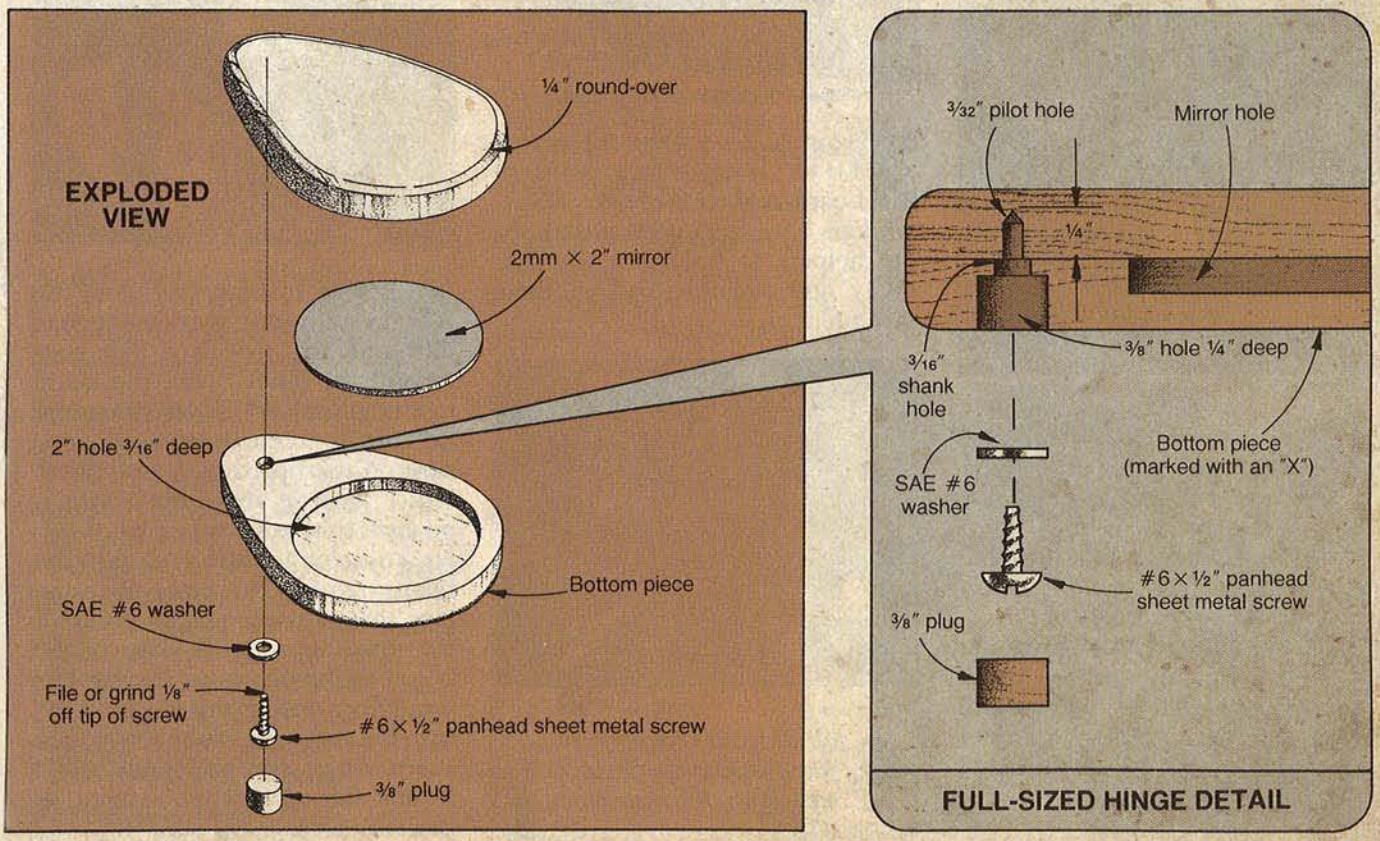
Project Design: Don Bailey Photograph: John Hetherington
Illustrations: Jamie Downing; Jim Stevenson

MIRROR

Cut a ⅜" plug, put it in the hole, and sand it flush. Finish the *outside* of the holder. Apply double-faced, foam-core tape to the mirror back, peel off the backing, and place the mirror in the hole.

Buying Guide

- **2" Forstner bit.** A true Forstner bit with no point, ⅜" shank, catalog no. 57000, $27 ppd., Connecticut Valley Mfg., P.O. Box 1957, New Britain, CT 06050.
- **Mirror kit.** Six 2mm × 2" mirrors with foam-core tape attached, six #6 × ½" panhead sheet-metal screws with washers, $8.50 ppd. Ennis Mountain Woods, Route 2, Box 222B, Afton, VA 22920.



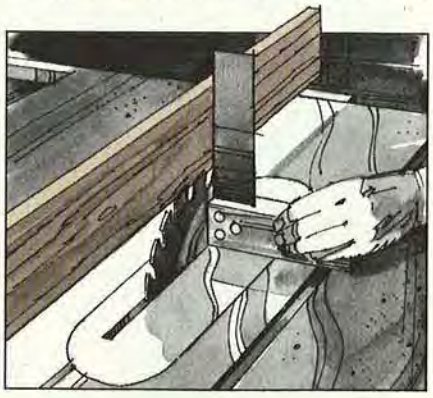
Print this article

RESAWING
THE SAFE AND SIMPLE WAY

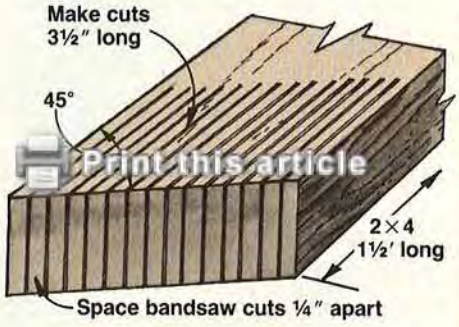
A surprising number of woodworking projects call for thin stock in dimensions such as ⅛", ¼", or ⅜". But that shouldn't pose any problems for you, even if you don't have a thickness planer, or don't want to order the material by mail. Just cut what you need from a thicker piece of stock—normally ¾" or thicker—using your tablesaw and a process called resawing. Here's how:

1 To determine how wide a board you can resaw, measure the maximum height of your tablesaw blade as shown *above.* Multiply this measurement times two and subtract ¼" to figure the maximum board width.

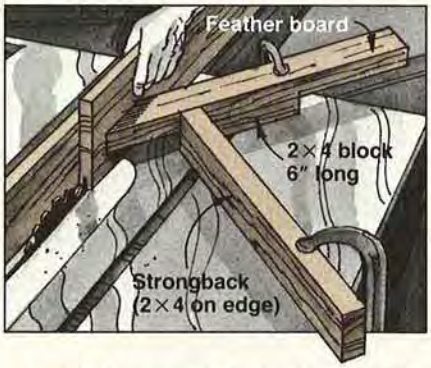
Attach an auxiliary ¾" plywood fence to your tablesaw rip fence. Cut the plywood as long as the standard fence and 1" higher than the maximum height of the blade as shown *above.*



2 With a try square, check that your blade is set at exactly 90° as shown *above.* Likewise, your fence must be perpendicular to the cutting surface.



3 From a 2×4 that measures 1½–2' long, cut a featherboard as shown *above.* Woodworkers have long used these simple helpers to hold a workpiece safely and securely against their saw's fence.



4 Adjust your fence for the desired thickness of stock. For example, set the fence ¼" from the blade for ¼"-thick stock. Then, clamp the featherboard and another 2'-long piece of 2×4—known as a strongback—to the tablesaw as shown *bottom center.* The top of the featherboard should be flush with the maximum height of the blade, and positioned just ahead of the blade with all the fingers in contact with the board. We raised the featherboard with a 6"-long block of 2×4 nailed to its underside. Set the strongback, which prevents the featherboard from pivoting toward the rear of the saw, at a 90° angle to the featherboard.

5 Before making any cuts, be certain the workpiece has one flat, true face that goes toward the fence. Raise the blade to a height of ¾" for your first cut. Be sure to keep downward pressure on the board with one hand, while feeding the board with a pushstick in your other hand. After completing this cut, flip the board end-for-end, place the same face against the fence, and make a cut into the opposite edge of the board as shown *above.* Repeat this sequence, raising the blade in ½" increments. Be sure to use a sharp, rip-profile blade, and stand to one side of it when sawing.

Illustrations: Jim Stevenson

RAIN FOREST UPDATE

Is logging destroying the rain forest? If so, what can be done? Woodworkers weigh responsibility at WARP's founding conference

Print this article

Last November, the Woodworkers Alliance for Rainforest Protection (WARP) gathered craftsmen, suppliers, and top international experts at the University of Massachusetts to ponder the use of rain forest woods. Here are the highlights.

—Peter Stephano, Senior Editor

"The tropical hardwood trade is a $7 billion a year business," reported speaker Ivan Ussach, director of the Rainforest Alliance's Tropical Timber Project. According to him, Japan and Europe import the most tropical hardwood, although the United States leads in dollar value because it imports more finished products.

Despite this dependence, the U.S. has never paid its $138,000 membership dues to the International Tropical Timber Organization (ITTO). This revelation came from Donald Thompson, a Philadelphia-based importer. "The ITTO," Thompson explained, "was established in 1985 to develop policies for sustainable utilization of tropical forests." Thompson urged attendees to campaign for U.S. financial support of ITTO programs (see box *below right*).

Will a boycott work?

WARP's collective answer was "NO!" A boycott by woodworkers and other consumers would only lower the value of rain forest species. That's according to keynote speaker John E. Earhart, a forester with years of rain forest experience and representative of the World Wildlife Fund and the Conservation Foundation.

Even selective logging—when harvesters enter the forest to cut only certain trees—damages as much as 60 percent of the remaining trees. So said Robert Simeone, a tropical forest specialist from Land O'Lakes, Wisconsin.

What then is the answer? One was given by Christopher Cox, director of the Ecological Trading Company (ETC), Newcastle on Tyne, England.

Certifying the source

"Woodworkers must be certain that tropical woods come from sustainable sources," Cox said. A cabinetmaker, Cox oversees ETC's purchases of rain forest woods, often visiting South American villages. "For a rain forest community to have its wood certified, it must own the land, inventory the trees, log responsibly, and get a fair price," he said.

Certification, such as required by the ETC, seems a priority. Even now, woodworkers should inquire where stock comes from, and demand responsible sources.

Here's how to help

To urge more economic support for the International Tropical Timber Organization's efforts, write: U.S. Senate Subcommittee on Foreign Operations Appropriations, Washington, DC 20510.

THE ENVIRONMENT IT'S ALL WE HAVE

Support WARP with a sweatshirt

WARP founding members Scott Landis, Leonard Lee, and John Shipstad display WARP's new sweatshirts. Sweatshirts are pale tan, 100 percent cotton fleece, in M, L, XL for $29.95 (U.S.) ppd. Cotton T-shirts also available for $14.95. Order from *WARP, Box 133, Coos Bay, OR 97420.* Entire proceeds fund WARP and its rain forest wood programs.

Illustration: Jim Stevenson
Photograph: David E. Donnelly

ONE LEAN JELLY BEAN MACHINE

Print this article

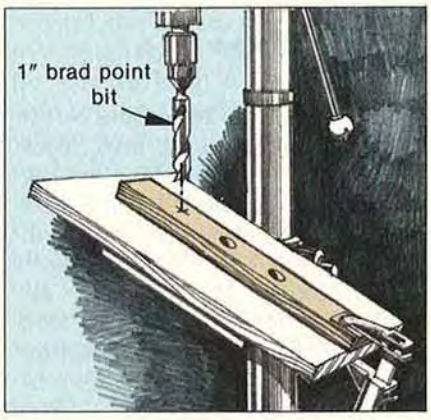
From the pages of sister publication *WEEKEND WOODWORKING PROJECTS*®, this clever, fun-to-build project not only fascinates, it also satisfies your sweet tooth in a hurry. Just fill it with jelly beans, turn the crank, and watch your treat tumble down the slides and into your hand.

First, let's cut the parts

1 Rip and crosscut the sides (A), the cover pieces (B, C), and the base pieces (C, D) to the sizes listed in the Bill of Materials. (We made our jelly bean machine out of ¾" pine.)

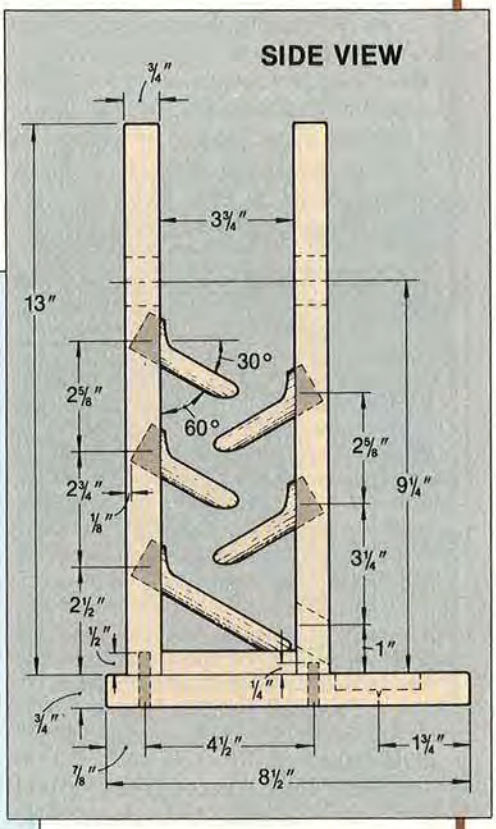
2 Cut a ⅛" saw kerf ⅜" deep and 3/16" in from the outside edges of each side-piece where shown on the Exploded-View drawing *opposite page*. (These kerfs hold the clear acrylic panels.)

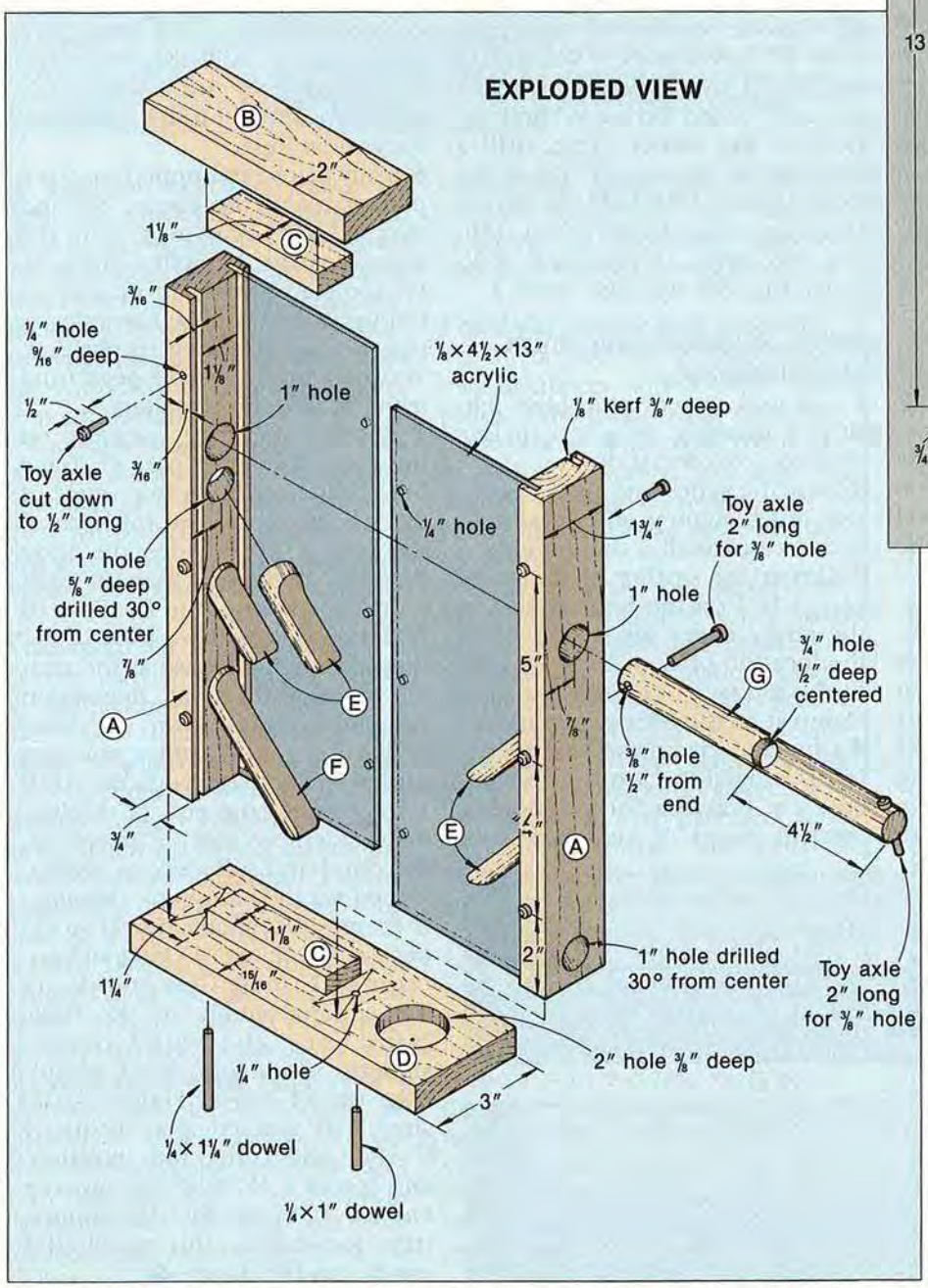
3 Using the dimensions on the Side-View drawing, *opposite page*, mark the center point locations for the five dowel slides (E, F), the two 1" crank holes, and the exit hole centered from edge to edge, on the inside face of the two sidepieces. Now, as shown *below*, tilt the table on your drill press table 30° from center. (If your table doesn't tilt, make a temporary jig to hold the sidepieces at the desired angle and clamp it in place while you drill the holes.) Using a brad-point bit, carefully drill 1" holes ⅝" deep for the slides, making sure you angle each hole as shown on the Side-View Drawing *opposite*. (We set the stop on our drill press to prevent drilling through the side, and then test-drilled holes in scrap stock.) Next, drill completely through the right hand sidepiece for the angled-exit hole.



4 Level the drill press table, and drill the 1" hole in each sidepiece (where marked) for the crank. Now, drill a 2"-diameter hole ⅜" deep, centered from side to side, in the base where located on the Side-View drawing. (We used a forstner bit.)

5 Cut two pieces of ⅛" clear acrylic to 4½×13" long. (We cut ours on a bandsaw fitted with a ⅛" fine-tooth blade but you can use a tablesaw.) Leave the protective cover on the acrylic to avoid scratching the surfaces until you're ready to install the panels.





Bill of Materials

Part	Finished Size*			Material	Qty.
	T	W	L		
A	¾"	1¾"	13"	pine	2
B	¾"	2"	6"	pine	1
C	½"	1⅛"	3 1/16"	pine	2
D	¾"	3"	8½"	pine	1
E*	1" diam.		3"	birch dowel	4
F*	1" diam.		4½"	birch dowel	1
G	1" diam.		9"	birch dowel	1

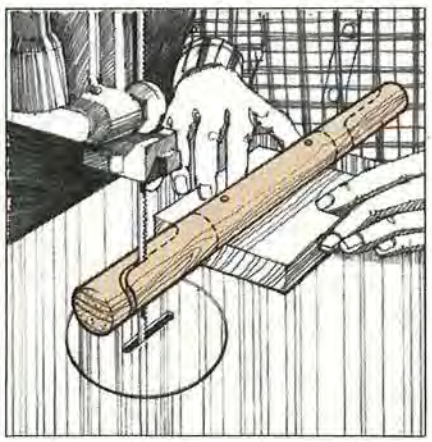
*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the instructions before cutting.

Supplies: 12—toy axle pegs for ¼" holes, 2—toy axle pegs for ⅜" holes, 2 pieces of ⅛×4½×13" acrylic, ¼" dowel stock, marking pens or analine dyes for coloring parts.

Project Design: Tom Lewis Wooden Toys Illustrations: Bill Zaun, Lippisch Design Inc. Photograph: Bob Calmer

Continued

6 To form the four short slides (E) shown in the Exploded View drawing, first cut a piece of 1"-diameter dowel stock to 11" long. Then, cut a piece of scrap to 3×4". Position the dowel on scrap so each end extends 3½" beyond the ends (see *below*).



7 Snip off the head of a 4-penny nail, and use the nail as a bit to drill two holes through the dowel and into the scrap holder. Nail the dowel to the holder.

8 Using the Full-Sized Slide drawing *below* as a pattern, mark cutlines on each end of the dowel where shown. (We traced two patterns on paper and adhered one to each end of the dowel with spray adhesive.) Then, using a bandsaw fitted with a ⅛" blade, cut the curved lines first. Then, crosscut the slides to length where shown with the dotted line. (You'll get two slides from each end of the dowel.)

9 To form the longer bottom slide, cut a 1"-diameter dowel to 9". Then use the full-sized drawing of F and the ¾" scrap holder, and repeat steps 7 and 8.

10 Cut the crank (G) to length from 1" dowel stock. (We sanded the dowel so it would turn easily in the 1" hole.) Drill a ¾" hole ½" deep at the center. Next, drill a ⅜" hole ½" from each end of the dowel crank. (We held the dowel crank in a handscrew when drilling the holes. If you have a V-block jig, that will also work.)

Now, assemble and finish the dispenser

1 Use red, green, and blue felt-tipped marking pens or analine dyes to color the slides.

2 Glue the slides into their respective holes, wiping off excess glue squeeze-out with a damp cloth.

3 Center the smaller of the cover pieces (C) on the bottom face of the larger cover piece (B). Mark the location of C on B, apply glue to the top face of C, and glue and clamp it to the area just marked.

4 Glue and clamp the base pieces (C, D) together (see the Exploded-View drawing for positioning *opposite page*). If necessary, trim part C to fit between the saw kerfs in the sidepieces.

5 Position the acrylic panels in the kerfs between the sidepieces. With the ends of the acrylic flush with the ends of the sidepieces, "clamp" the assembly together with tape or rubber bands. To hold the acrylic panels permanently in place, use a brad-point bit to drill ¼" holes 9/16" from the inside edge of both sidepieces where indicated on the Exploded-View drawing.

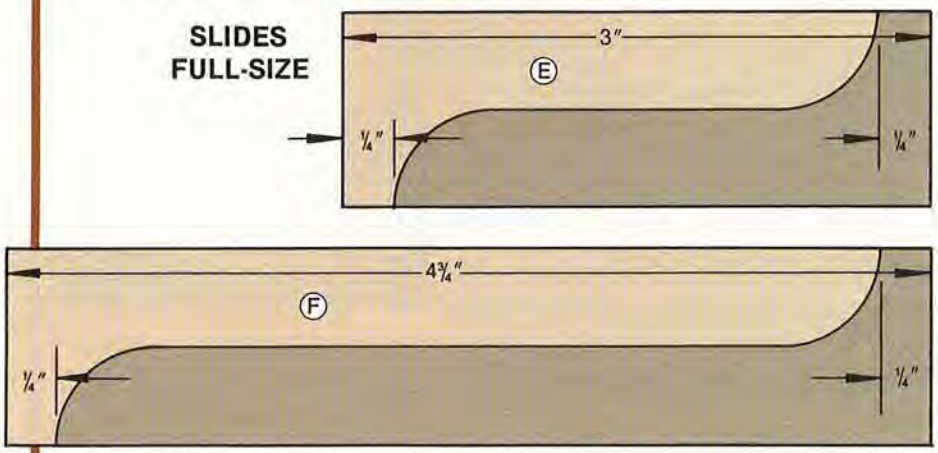
6 Stain or use felt-tipped marking pens to color the twelve ¼" and two ⅜" toy axle pegs. Cut the shanks of the ¼" axles down to ½" long. Apply a dab of glue to the tip and insert the toy axles to peg the acrylic panels in position. You can buy toy axle pegs from many mail-order suppliers.

7 Position the slide assembly on the base and over part C. Trace the outline of the bottom ends of the sidepieces on the top face of the base (D). Remove the slide asembly. Draw diagonals in each marked rectangular outline to find the center. Now drill a ¼" hole through the base at the center of each diagonal. Reposition the slide assembly on the base, and using the ¼" holes you just drilled in the base as guides, drill ½" deep into the end of the left-hand sidepiece and ¼" deep into the righthand sidepiece as dimensioned on the Side-View drawing.

8 From ¼"-diameter dowel stock, cut one piece to 1¼" long and another to 1" long. Glue and dowel the slide assembly to the base. Hand-sand the wood pieces smooth, sanding a slight roundover on all edges. Finish as desired. (We applied spray lacquer.)

9 Slide the crank into position, and install a ⅜" axle peg at each end of it. Now, fill the hopper, turn the crank, and watch the candy tumble down.

SLIDES FULL-SIZE



MARKING GAUGES

WHEN ONLY FINE LINES WILL DO

Sample this collection of gauges and their present-day values, clockwise from top: Stanley No. 60 iron marking gauge, $75; William's patent combination gauge, $300; Stanley double-beam boxwood gauge, $60; Scholl's patent rosewood marking and mortise gauge, $250; Blaisdell's patent, $300.

Egyptian craftsmen made do with chalk lines for laying out work on wood. The Romans relied heavily on the compass to trace lines and transfer measurements. But it wasn't until the marking gauge emerged in the mid-1700s that woodworkers could achieve pinpoint accuracy.

The first marking gauges, then as now, were simple tools. They consisted of a hardwood beam or stem with a scribing point at one end and a sliding head that could be fixed in position with a wedge.

The road to improvement

By the early 19th century, wooden thumbscrews and setscrews in the head began replacing the wedge arrangement. This improvement speeded adjustment and increased accuracy. English toolmakers, though, never adopted the thumbscrew—almost all English marking gauges rely on a flathead screw that must be set with a screwdriver.

Once the head of the marking gauge could be firmly secured, other avenues of development opened up. For instance, by adding a second sliding beam with a scribing point, the tool could accurately and repeatedly lay out both sides of tenons and mortises.

By the mid-1800s other special gauges arrived for laying out door hardware and hinge butts. With the addition of roller spurs at the end of the beam (see the William's patent combination gauge, above), woodworkers could cut fine lines in workpieces in order to give saws and chisels a foolproof starting place.

Polished metal and patents

To extend the life of gauge heads, manufacturers added brass wear plates. Some gauge heads were even made entirely of metal. The beam of a gauge took a beating, too, requiring the use of dense hardwood such as beech, cherry, ebony, and rosewood for this piece.

Combinations of wood and brass made attractive tools, such as the rosewood and brass William's patent combination gauge, introduced in 1859 by the Stanley Rule and Level Co. This device featured a mortise gauge, cutting gauge, and marking gauge, and was Stanley's first patented tool. Back then, it sold for a pricey $1.80. By 1879, Stanley marketed an all-iron gauge.

Special gauges also met the needs of various trades and differing applications. An example is Blaisdell's patent for marking lines parallel to convex and concave surfaces with the help of brass adjusting wings. Scholl's patent gauge of the 1880s, made by the Chapin Tool Company, used three or four stems clamped by one headscrew, enabling the user to lay out intricate joints.

Written with Philip Whitby

Photograph: John Hetherington

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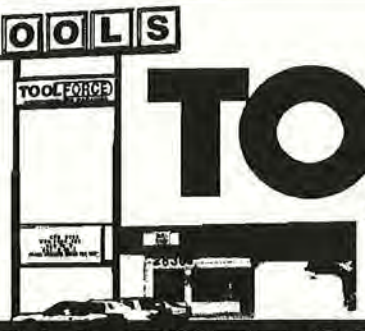

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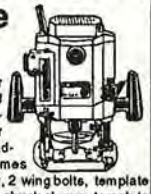

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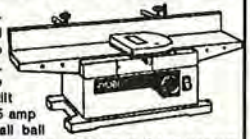

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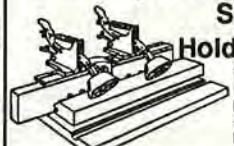

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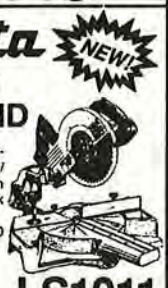

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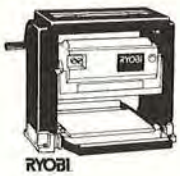

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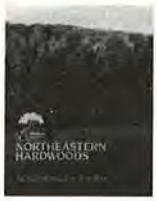

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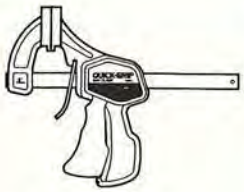

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ASK WOOD

Whether your woodworker's license reads "Beginner," "Intermediate," or "Advanced," you're bound to have a few questions about your favorite hobby. We can help by consulting our staff and outside experts. Send questions to:

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Print this article

We'll answer all questions, but due to the volume of mail, we can't publish every letter. We may edit letters selected for publication.

Getting to know unknown woods

I am sending you samples of wood that I can't find the name of and want to know more about. Folks at the sawmill couldn't tell me anything, and when I ran samples by craftsmen at a woodworker's show, they guessed chestnut and sassafras.

I do know that the tree came from Lancaster County, Pennsylvania. The wood is red, as you can see, light when first cut, but then turns darker. It saws easily, sands well, and takes stain and varnish. I have subscribed to *WOOD* magazine since the first issue and like it for its information, patterns, and wood knowledge. I would be grateful for any information you could tell me about this wood.

—John Dupes, Middletown, Pa.

John, you might think that a standing tree, complete with all its leaves and bark, offers the best clues for identification. But with a milled piece of wood, or wood in the raw, the situation changes. Your salvation—a few handy wood-identification books that do wonders helping a novice figure out wood species. Typically, color, density, odor, luster, grain patterns, and growth rings can tell you plenty. Studying the end grain patterns of your samples above, *and comparing them with those in our reference books, we quickly arrived at your answer. The mystery wood? Chestnut.*

If this subject interests you, check out the following books from your library, or order them from a local bookstore:

IDENTIFYING WOOD:
Accurate results with simple tools
by R. Bruce Hoadley,
The Taunton Press, 1990

WOOD STRUCTURE AND IDENTIFICATION
H.A. Core, W.A. Cote, A.C. Day,
Syracuse University Press, 1979

To identify live standing trees, try the Audubon Society's FIELD GUIDE TO NORTHERN AMERICAN TREES *by Elbert L. Little, Alfred A. Knopf, 1980.*

Continued on page 90

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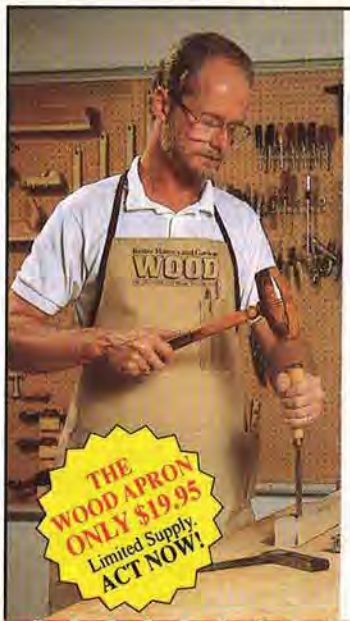

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ASK WOOD

Continued from page 89

Love those materials lists!

The changes you made in the new, improved *WOOD* magazine are super. However, in the Craft Shop, you make it difficult to build the "easy-to-build" projects by excluding the bill of materials. Each of your other, larger projects has a bill of materials. Your magazine has always stood out from others with clear directions, so why not include a bill with each Craft Shop project?

—Chuck Hopkins, La Center, Wash.

Chuck, thanks for your concern. Providing readers with everything they need to know to build a featured project remains a constant goal in the magazine. With the Craft Shop section, we opted for flexibility. We plan to include a bill of materials only for those projects having several parts. Simple scrollsawed projects cut from a single piece of wood don't really require one. For projects that fall somewhere in between, we intend to include an introductory note telling what wood you'll need to complete the project. We hope this helps.

Making rosewood rosy

I am having a problem finishing the rosewood trim around my fireplace. I have tried polyurethane with no success. What do you suggest?

—Larry D. Bruck, Logansport, Ind.

Larry, Project Builder Jim Boelling says he has used both polyurethane and lacquer on rosewood and come away with a fine finish. He's developed a process that you may want to try. Because of rosewood's oily nature, Jim advises first wiping the surfaces down with thinner. Then, he applies two coats of sanding sealer thinned at 50 percent. He applies a third coat thinned at 25 percent, and then a final coat full strength.

The meaning behind MDF

During a visit to a woodturning exhibit, I found several mentions of a material referred to as MDF. Could you inform me what it is and its usage?

—Jaime Corbett, Buenos Aires, Argentina

Jaime, as a well-trained employee at a lumberyard service center would tell you, the letters representing the product you mentioned, MDF, stand for medium-density fiberboard. It's a 4×8 sheet good product purchased in ½", ⅝", and ¾" thicknesses, and made up of a blend of western softwoods and glue. The smooth surfaces of medium-density fiberboard, along with its built-in weather resistance, make it ideal for high-quality outdoor paint finishes. Outdoor signs serve as one of the more common uses of this product.

The incredible shrinking dowels

Whatever happened to standard sizes in wood dowels? In years past when you bought a ½" or ¾" dowel rod, it measured ½" or ¾" in diameter. No more! Recently, I needed ¾" dowel for a wood shaft. I shopped at several stores, including Home Depot, Ace Hardware, and True Value Hardware. The so-called ¾" dowels were from 1/64" to 1/32" undersized, which would result in a sloppy fit. Fortunately, I had enough ¾" dowel I bought four or five years ago to finish the job. What can I do the next time this happens? Needless to say, I'm plenty confused and don't know where to turn.

—Lee E. Warren, Sun City, Ariz.

Lee, thanks for bringing up this frustrating concern. We did a little investigating at lumberyards and hardware stores here in the midwest and found the problem of undersized dowels to be rampant in our neck of the woods as well. That discovery launched us into a second investigation to find how and why this is happening.

Talking to H.A. Stiles Company in West Brook, Maine, a major manufacturer of dowels that consistently measure to specified diameters, we learned that differences lie in whether the dowels have been kiln- or air-dried, and whether they're made here or abroad. Those air-dried, it turns out, all hail from overseas, from Taiwan, the Philippines, and Malaysia. During shipping or storage, these same dowels undergo slight shrinkage, which results in their undersized diameters. The diameters of kiln-dried dowels, on the other hand, remain stable and consistent from dowel to dowel.

Now, you're likely wondering, "Who can I trust? What lumberyard or hardware store can I go to for actual-sized dowels?" Because so many such places buy in volume and at the lowest prices, your chances of buying undersized dowels seem, unfortunately, pretty good. For this reason, we recommend drilling a hole in scrap to the desired diameter and taking it to your retailer for test-fitting before you buy.

We also recommend calling your favorite mail-order suppliers to find out from whom they purchase their dowels and whether their stock is kiln- or air-dried. We called Dorothy Constantine Dockerty, president of Constantine's, a large mail-order house for woodworking supplies, and found that her buyers ordered dowel stock from Cincinnati Dowel and Wood Products Company, as well as H.A. Stiles. To date, Constantine's has not had a single complaint on dowel diameters. If interested in their catalog, call 800-223-8087. Once you find a reliable source, stick with it.

The *WOOD*® magazine textbook

I am a teacher at Roosevelt Middle School and teach technology education. My question is this: Do you publish any educational material that I could use in my classes?

—Ken Eckelberry, Coffeyville, Kan.

Ken, how about "yes" and "no" as answers to your question? Though we do not produce special material for schools, we do produce a ton of highly instructive stories each year in WOOD *magazine and sister publication,* Weekend Woodworking Projects®. *If you've subscribed to* WOOD *for several issues, then you know that we handle each project as an opportunity to teach readers about some aspect of woodworking. Even if students avoid hands-on woodworking, our features provide lots of opportunities for them to grow.*

Stuck on gluing

My humble woodworker's license reads BEGINNER. Right now, I'm interested in gluing tongue-and-groove strips that measure 1½ × 18″ for a breadboard. Could you tell me where the glue needs to go and how I can get it there?

—Roy Mac Nair, Colchester, Vt.

Roy, knowing the secret to successful gluing can do wonders for your woodworking confidence. But how you seal and clean your completed cutting board may have more to do with preserving it for a long, useful life.

Our project builder, Jim Boelling, relies on yellow woodworker's glue for the cutting boards you see in WOOD *magazine. When working with tongue-and-groove strips, he says he first stands the joining pieces on their tongues and face-to-face, holding them together with a clamp. Next, using a ½″ acid brush or 1″ foam brush (both found at hardware stores), he applies the glue in the grooves and on the shoulders of the grooves. Then, he releases the clamp and quickly coats the tongues of the pieces, placing them one by one in their joining order on a sheet of waxed paper. Finally, he applies hand pressure to bring the pieces together, and rests the lamination on a pair of well-spaced bar clamps. He places a third bar clamp on top of the lamination, midway between the two bottom clamps, and applies pressure evenly to all three.*

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11-950	8" drill press	164	148
40-150	15" hobby scroll saw	178	139
28-160	10" hobby band saw	189	144
31-050	1" belt sander 2.0 amp	93	78
31-460	4" belt/disc sander	178	139
31-340	NEW 1" belt/8" disc sander	226	184
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43-355	3/4" Shaper 1 1/2 h.p.	950	665
43-505	1/2"Bench router/shaper	399	279
22-540	12" Bench top planer	595	389

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33-990	10" radial arm saw	727	575
37-280	6" motorized jointer	440	375
50-179	3/4 HP 2 stg. dust coll.	435	345
50-180	1 HP dust collector	535	415
50-181	2 HP dust collector	760	599
22-667	13" planer w/2 HP motor w/stand & ext. wings	1750	1099
33-050	NEW 8-1/4 Sawbuck	742	545
33-055	Above saw comp w/legs	865	589
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34-985	1/6 HP stock feeder	698	459
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34-897	50" Delta unifence	500	349
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0399-1	12V cdlss drill kit comp	290	155
0402-1	same as 0399-1 w/keyls chuck	290	165
0395-1	9.6V cdlss. drill w/case	270	148
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0224-1	3/8" drill 4.5A magnum	189	112
0234-1	1/2" drill 4.5Amag0-850rpm	209	112
0244-1	1/2" drill 4.5Amag0-600rpm	209	112
0222-1	3/8" drill 3.5A 0-1000 rpm	179	102
0228-1	3/8" drill 3.5A 0-1000 rpm	169	99
0375-1	3/8" close quarter drill	208	125
0379-1	1/2" close quarter drill	243	154
6539-1	Cdls. scrdrv. 190 rpm	119	69
6540-1	Cdls. scrdrv. w/bits & case	159	108
6546-1	Cdls. scrdrv. 200 & 400 rpm	126	75
3102-1	Pimbrs rt angle drill kit	330	185
5399	1/2" D-hdle ham drill kit	312	179
1676-1	H.D. Hole Hawg w/case	429	229
6511	2 speed SawZall w/case	224	129
6750-1	Drywall gun 0-4000 4.5A	154	89
6507	TSC SawZall w/case	239	129
6170	14" chop saw	430	259
6014	Orbital sander 1/2 sheet	209	118
8977	Var. temp heat gun	114	75
5397-1	3.8" v/sp ham. drill kit	232	137
5371-1	1/2" v/sp ham. drill kit	335	185
3107-1	1/2" v/sp rt angle drill kit	340	189
6754-1	Drywall gun 0-4000 4.5A	179	119
3300-1	1/2" v/sp mag rt angle drill	309	179
5660	Router 1-1/2 HP - 10amp	325	189
5680	Router 2 HP - 12 Amp	355	219
5455	7/8" polisher 1750 rpm	219	127
6215	16" chain saw	280	169
6365	7-1/4" circular saw	204	119
6366	7-1/4" circ. saw w/fnc & bld	214	125
6368	7-1/4" circ. saw w/fence blade & case	239	135
0235-1	1/2" drill kyls. chuck mag	215	125
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6145	4.5" grinder 10,000 rpm	159	95
6142	6145 w/case & access	197	125
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6377	7-1/4" worm drive saw	295	169

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LU84M011	Comb 10"	50	65	41
LU85M010	Super Cut-off10"	80	96	56
LM72M010	Ripping 10"	24	57	37
LU73M010	Cut off 10"	60	70	44
LU87M010	Thin kerf 10"	24	60	36
LU88M010	Thin kerf 10	60	74	44
LU98M010	Ultimate 10"	80	107	69
SD306	6" Dado - Carbide		184	109
SD308	8" Dado - Carbide		196	115
F0	1-3/4" x 5/8" Bisc. 1000 Qty.		32	27
F10	2-1/8" x 3/4" Bisc. 1000 Qty.		32	27
F20	2-3/4" x 1" Bisc. 1000 Qty.		34	29
FA	Assor. Biscuits 1000 Qty.		34	29
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TK306	10" Finishing	40	40	25.10
TK903	7-1/4" Combo	30	31	19.49
TK906	10" Combo	50	45	28.25

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Model		List	Sale
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6071DWK	3/8" v/speed rev. drill w/removable batt, 7.2v	199	115
5090DW	3-3/8" saw kit, 9.6v	256	139
6010DWK	3/8" cdls drill kit 7.2v	164	95
6010SDW	3/8" cdls. drill kit, 7.2v	99	59
DA3000DW	3/8" angle drill, 7.2v	251	139
4390DW	9.6 cdls recip saw kit	230	128
6012HDW	2 spd. drill w/clutch-comp	236	122
6092DW	V/sp drill, kit complete	250	125
6093DW	V/sp drill w/clutch-complete	261	127
632007-4	9.6 volt battery	48	30
632002-4	7.2 volt battery	40	28
5007NBA	7-1/4" saw w/elec. brake	233	124
5008NBA	8-1/4" saw w/elec. brake	284	158
B04510	1/4 sheet pad sander	85	54
9900B	3" x 21" belt sander w/bag	268	144
9924DB	3"x 24" belt sander w/bag	282	145
9045N	1/2 shf lin. sand. w/bag	231	129
4200N	4-3/8" circ. saw 7.4A	225	127
4301BV	Orb. v/sp jig saw 3.5A	289	155
JR3000V	Vs. recip saw w/case	227	124
LS1020	10" miter saw 3.5A	463	269
9820-2	Blade sharpener	373	195
1900BW	3-3/4" planer w/case	209	114
1911B	4-3/8" circ. saw 7.5A	240	139
1100	3-1/4" planer w/case	401	205
9207SPC	7" sander-polisher	276	149
3601B	1-3/8 HP router	255	135
9501B2	4" grinder, 3.5 amp	126	69
B04530	6" round sander	101	64
B04550	1/4 sht pad sander w/bag	86	58
DA3000R	3/8"angle drill	270	148
HP2010N	3/4" v/sp hmr. drill w/case	300	165
2708W	8-1/4" table saw	504	249
2711	10" table saw w/brake	841	479
2030N	12" planer/jointer	3120	1699
2040	15-5/8" planer	2595	1375
1805B	6-1/8" planer kit w/case	679	359
5005BA	5-1/2" circular saw	223	135
6404	3/8" drill rev. 0-2100 rpm 2A	104	65
6510LVR	3/8" drill rev. 0-1050 rpm	145	83
6013BR	1/2" drill rev. 6 Amp	241	135
5402A	16" circular saw-12 amp	536	325
3612BR	3 HP plunge router	377	189
9401	4" x 24" belt sander w/bag	318	165
4302C	V spd. orbital jig saw	302	159
5077B	7-1/4" Hypord saw	252	138
LS1440	14" Miter saw	721	435
LS1030	NEW 10" Mitre saw	414	225
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LS2	Pinner 5/8" - 1"	351	255
SKS	Stapler 5/8" - 1-1/2"	351	255
LS5	Pinner 1" - 1-1/2"	399	285

BOSTICH AIR NAILERS

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N80S-1	Stick nailer	845	419
T36-50	Sheath & decking stapler	595	334
N12B-1	Coil roofing nailer	845	419
N60FN-2	Finishing nailer	625	339
T31	Brad nailer	270	155
CWC100	1 HP Pancake Compressor	445	299

SKIL SIZZLERS

6850-02	1/2" EMH hammer drill w/case	255	135
3810	10" Miter saw	263	209
3810S	3810 w/60 tooth carb blade		235
77	7-1/4" worm drive saw	230	144
2735-04	12 v v/spd cordless drill,w/case,2 batt & xtra special 5 piece bit set	210	129
1605-02	NEW Biscuit Jointer w/case	200	119

PANASONIC CORDLESS

EY6205BC	NEW v/spd. 12 volt drill w/15 minute charger & case	390	179
EY6005B	12v cdls drill w/1 hr charger	315	169
EY6200B	NEW 2 spd. 12 volt drill d-handle w/15 minute charger	350	185
EY6281B	NEW v/spd. 9.6 volt drill w/15 minute charger	350	169
EY571B	V/spd 9.6 volt drill kit	239	128

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MMTA	24" mort. & tenon attachment	299	169

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M12V	NEW 3 HP v/sp router	437	235
TR12	Plunge router, 3 HP	354	169
F1000A	12" Planer/6"jointer	2835	1505
P100F	12" Planer	2005	1259
C10FA	10" deluxe mitre saw	490	269
C12FA	NEW 12" mitre saw	586	319
C8FB	8-1/2" slide cmpd saw	859	445
FREUD	LU91M008 8-1/2" c/bld 48 tooth	58	38
C15FB	15" miter saw	745	379
FREUD	LU85M015 15"c/bld 108 tooth	181	115

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73-757	7-1/4	40	31.30	16.79
73-759	8-1/4	40	44.65	24.99
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73-715	5-1/2	16	13.70	7.99
73-740	10	32	32.98	15.95
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7334K	Porter Cable 5" random orbit sander w/case & 1 roll 100X & 150X discs	253	149
7335K	Porter Cable 5" v/spd random orb sander w/case & 1 roll 100X & 150X discs	273	159
7336K	Porter Cable 6" v/sp rand orb sander w/case & 1 roll 100X & 150X discs	278	165
555K	Porter Cable plate biscuit jointer w/case & 1000 assort. biscuits	339	189
JS100K	Freud plate biscuit jointer w/case & 1000 assort. biscuits	351	184
1581VSK	Bosch top hdle jig saw with case & 30 Bosch blades	305	185
1582VSK	Bosch CLIC barrell grip jig saw w/case & 30 Bosch blades	305	185

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B-50	50" commer. saw fence	329	295
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Model	Description	List	Sale
SM-TR2	2 FT level w/sensor	120	108
SM-TR4	4 FT level w/sensor	150	135
SM-TR6	6 FT level w/sensor	180	162
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JORGENSEN I-BAR CLAMPS

Model	Size	List	Sale
7224	24"	27.11	16.95
7236	36"	29.10	17.95
7248	48"	31.96	19.75
7260	60"	35.60	22.85
7272	72"	37.30	25.29

ADJUSTABLE HANDSCREWS BY JORGENSEN

Item#	Jaw Length	Open Cap	List	Sale	Box of 6
#0	8"	4-1/2"	18.63	11.95	62.95
#1	10"	6"	21.30	12.99	71.49
#2	12"	8-1/2"	24.45	15.95	81.89
#3	14"	10"	31.01	18.95	104.95
#4	16"	12"	40.30	24.89	146.85

STYLE 37 2-1/2"Throat 1/4" x 3/4" JORGENSEN

Item#	Jaw Length	List	Sale	Box of 6
3706	6"	9.30	6.29	35.65
3712	12"	10.30	6.79	38.59
3718	18"	11.37	7.35	41.69
3724	24"	12.42	7.99	45.25
3730	30"	13.85	9.05	51.19
3736	36"	15.15	9.95	56.65

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Model	List	Sale	Lots of 12
503/4" black pipe clamps	13.10	7.89	84.99
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BOSCH

Model		List	Sale
1581VS	Top handle jig saw	239	133
1582VSC	NEW CLIC Barrell jig saw	245	133
	Bosch metal case for above jig saws	34	30
	Bosch blade assortment for jig saws 30 of Bosch's best selling blades	25.99	
1942	Heat gun 600° - 900°	99	65
1272D	3" x 24" belt sander w/bag	299	169
1273D	4" x 24" belt sander w/bag	315	178
1290D	1/2 sheet sander w/bag	209	115
11-212VSR	Bulldog 3/4"SDS rtry drill	339	194
1198VSR	1/2" v/sp hammer drill	229	133
1608	5.6A laminate trimmer	140	87
1608L	Same/above w/trim guide	145	92
1609	5.6A offset base trimmer	205	115
1609K	Lam installers kit w/1609	295	169
1601	1 HP Router	165	105
1602	1-1/2 HP Router	199	125
1603	1/2 HP D hdle. router	223	139
1604	1-3/4 HP D hdle. router	219	118
1604K	Same as above w/cs & acc	269	165
1606	1-3/4 HP D hdle. router	243	145
3258	3-1/4" planer w/blde guard	210	118
3270D	3" x 21" belt sand. w/bag	225	135
1273DVS	V/sp 4x24 belt sander	339	189
1611	3 HP plunge router	349	198
1611EVS	3 HP V/speed router	410	229
1651	7-1/4" circ. saw drop foot	179	109
1654	7-1/4" circ. saw pivot base	179	109
1632VSR	K Recip saw 8.4A orb-v/sp	225	135
3050VSR	K 9.6v cdls v/spd drill kit comp	235	135
1370DEVS	6" heavy duty random sndr	369	225
3283DVS	5" random orbit sander	159	95

ELU BY BLACK & DECKER

Model		List	Sale
3338	2.25 HP v/spd plunge router	387	249
3304	1 HP v/spd plunge router	261	178
3375	3-1/8" univ. planer 7.2A	280	158
3380	Biscuit jointer w/case	485	245
4024	3 x 21 v/spd belt sander	289	188

BLACK & DECKER

Model		List	Sale
1166	3/8" Drill 0-2500 rpm 4A	96	59
2600	3/8" drill 0-1200 rpm 4.5A	125	85
1707	8.5" crosscut miter saw	813	445
1703	10" miter saw w/73-770 bld	313	179
2694	NEW 7 1/4 super sawcat.	242	159
2695	NEW 8 1/4 super sawcat.	265	175
4011	1/4 sheet palm sander	82	62

JET TOOLS

Model	Description	List	Sale
JBS-14CS	NEW 14" band saw 1 HP	579	389
JTS-10	10" tbl saw w/std 1-1/2 HP	554	449
JJ-8	8" jointer, 2 H.P.	1252	939
DC610	1 H.P. dust collector	321	245
DC1182	2 H.P. dust collector	577	405
DC1883	3 H.P. dust collector	850	639
JJ-4	4" jointer, 1/2 HP	310	275
JJ-6CS	NEW 6" jointer, 3/4 HP	579	389
JWP-15H	15" planer 3 H.P.	1565	989
JWP12D	Dust chute for JWP12	45	22
JSG-6	6 x 48 belt & 12" disc sander	634	475
JDP10	NEW 10" bench drill press	209	165
JDP14M	NEW 14" bench drill press	339	285
JDP17M	NEW 16 1/2" bench drill press	399	365
JDP14MF	NEW 14" floor drill press	419	349
JDP17MF	NEW 16 1/2" floor drill press	459	379
JDP20MF	NEW 20 1/2" floor drill press	819	645

RYOBI SPECIALS

Model		List	Sale
JP-155	6 1/8" jointer/planer	611	305
R500	2-1/4 HP plunge router	326	155
TS-254	NEW 10" mitre saw	397	205
TS-254K	Above saw w/acc. kit & B&D 73-770 carb blade	495	249
AP10	10" surface planer 13A	820	358
RA200	8-1/4" radial arm saw	515	245
RE600	3 HP plunge router	398	205
BE424	NEW 4X24 var spd belt sndr	340	175
BE321	3 x 21" v/sp belt sander	259	129
SC160	NEW 16" bench scroll saw	260	145
TFD170VRK	9.6V cdlss drill kit	254	145
TFD220VRK	12V cdlss drill kit	279	165
JM100K	NEW Biscuit jointer w/case	430	215
RS115	NEW 4 1/2"v/sp rndm orb sndr	134	79

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PORTER CABLE

Model		List	Sale
690	1-1/2 HP router 8A	225	124
691	1-1/2 HP router D hdle	245	135
695	1-1/2 HP router/shaper	310	198
696	H.D. shaper table	170	115
351	3" x 21" belt sand w/o bag	225	128
352	3" x 21" belt sand w/bag	235	129
360	3" x 24" belt sand w/bag	310	174
361	3" x 24" belt sand w/o bag	290	168
362	4" x 24" belt sand w/bag	325	184
363	4" x 24" belt sand w/o bag	310	179
315-1	7-1/4" top hdle circ saw	195	115
9315-1	315-1 comp. w/cs & carb bld.	225	129
617	7-1/4" pushhandle saw	195	115
9617	617 comp. w/cs & carb bld	225	129
314	4-1/2" Trim saw	215	125
9548	X HD bayonet saw w/case	290	195
9629	Recip saw v/speed 8A	235	139
9627	Recip saw 2-speed 8A	225	128
666	3/8" HD vsp drill 0-1200 rpm	185	122
621	3/8" HD vsp drill 0-1000 rpm	155	95
320	Abrasive plane 3 Amp	160	109
9118	Porta plane kit 7 Amp	335	189
7545	0-2500 drywall gun 5.2A	169	104
505	1/2 sheet pad sander	195	112
7511	3/8" v/sp drill 5.2 Amp	185	109
7514	1/2" v/sp drill 0-750 rpm	195	117
7548	Top hdl jig saw 4.8A	230	135
7649	Barrel grip jig saw 4.8A	225	149
330	Speed block sander 1/4 sheet	97	55
555	Plate biscuit jointer w/case	299	165
345	6" saw boss 9 Amp	170	99
9345	345 comp. w/cs & carb bld	220	129
100	7/8 H.P. router	165	98
5116	Omni-Jig	395	265
9647	TIGER CUB recip saw	195	119
9850	12v cordless drill w/case	230	135
9851	9850 w/keyless chuck	230	135
8500	Extra 12v battery	48	35
9637	Full v/sp recip saw 8 A	240	135
7519	3-1/4 HP Router 2 Handle	399	235
7538	3-1/4 HP Plnge Router 2 Hdl	399	235
7536	2-1/2 HP 2 Hdle Router	355	205
7537	2-1/2 HP "D" Hdle Router	375	219
7538	3-1/4 HP plunge router	399	235
7399	5.6A drywall cutout unit	120	75
7310	5.6A laminate trimmer	145	89
7312	5.6A offset base lam trm	209	119
7319	5.6A tilt base lam trimmer	165	105
97310	Lam Trim Kit w/std. Base, Tilt Base, Offset Base, Slitter Base, Guide & Cs	330	185
7334	5" random orbit sander	205	119
7335	5" v/spd random orbit sander	225	129
7336	6" v/spd random orbit sander	225	134
693	1-1/2 H.P. plunge router base	280	165
6931	Plunge router base	120	75
7539	NEW3-1/4HP v/sp Plge Router	475	265
9505	**505 Commemorative Edition**		
	1/2 sheet pad sander w/oak case		139

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NO SHAGGY DOG, THIS TALE

Eerie faces peer out at Herb Fausch from log jams. He extracts figures of shaggy dogs, jumping fish, and horses, found among tangles of twisted, bone-white root wood, broken tree trunks, limbs and branches. Where others see firewood, the retired Sheldahl, Iowa, postman spots elves.

Herb, you see, scouts local riverbanks, lakes, and reservoirs for driftwood in the shape of nature's creatures. Armed with a hatchet and a walking stick, he collects samples, then hauls them home in his van for cleanup. He might even carve an eye here or shape a mouth there, just to get the right effect, but mostly he just cleans the wood, then coats it with a protective polyurethane finish.

"I call these critters 'natural phenomena', and the best thing about them is that they're free," he says. Herb has stacks of free figures he's found locally, and even more from his vacations in the West and Southwest. "I have carver friends out there to direct me to ponderosa pine knots as well as driftwood," Herb comments, as he stuffs new finds into the cargo area of his van.

Right: **An afternoon stroll along the lake produces a few prime specimens of natural phenomena to load in the van.**

Below: **Herb sees a shaggy sheepdog in the light-colored piece of wood at center. Can you see the gnome in the lower left?**

SQUIRRELS SEEDIER IN THE WEST?

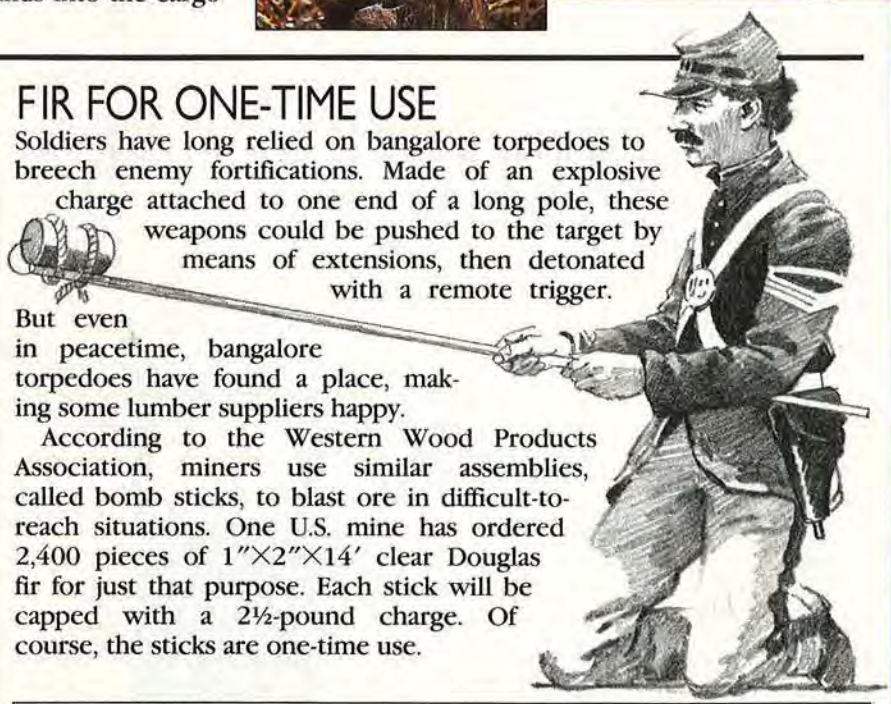
Western squirrels are a seedy bunch. Food caches scrounged up by Western squirrels have been found to contain as much as eight bushels of conifer seeds! That's a lot of gathering, true, but in a good year a single white pine can produce a bushel of seeds, a ponderosa pine about four bushels, and an old-growth Douglas fir three-and-one-half bushels.

FIR FOR ONE-TIME USE

Soldiers have long relied on bangalore torpedoes to breech enemy fortifications. Made of an explosive charge attached to one end of a long pole, these weapons could be pushed to the target by means of extensions, then detonated with a remote trigger.

But even in peacetime, bangalore torpedoes have found a place, making some lumber suppliers happy.

According to the Western Wood Products Association, miners use similar assemblies, called bomb sticks, to blast ore in difficult-to-reach situations. One U.S. mine has ordered 2,400 pieces of 1″×2″×14′ clear Douglas fir for just that purpose. Each stick will be capped with a 2½-pound charge. Of course, the sticks are one-time use.



TEAK TACTICS

As much as 80 percent of the world's teak grows in Burma, wood experts say. Some are concerned, however, that rather than steward this valuable resource, the country's military government apparently is exporting vast quantities of the wood —and fish, too—to help finance its regime. The U.S. Senate and House of Representatives are considering banning the sale of this imported teak, reports the National Forest Products Association. If passed, the bills would help isolate the Burmese government, widely accused of human rights violations.

Photographs: Bob Calmer Illustrations: Jim Stevenson

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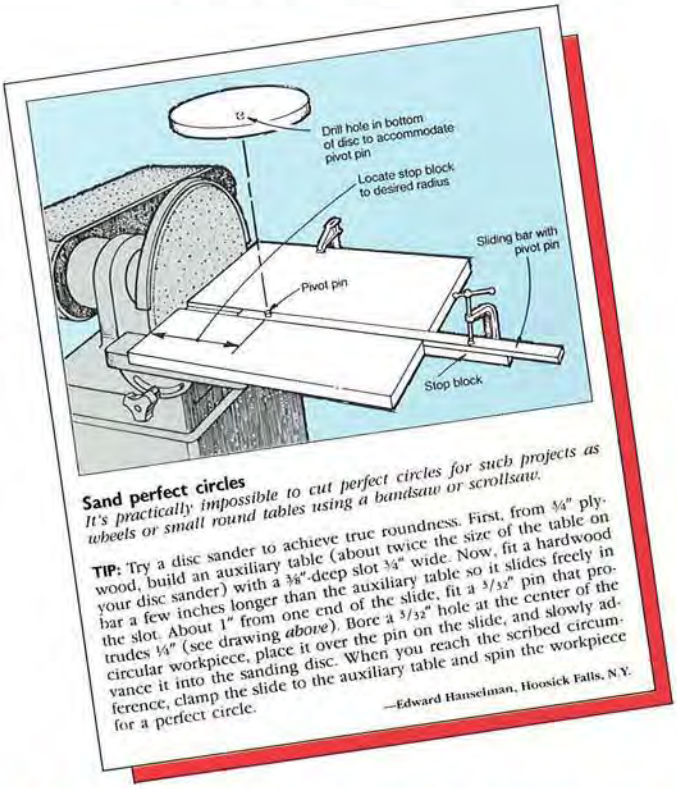
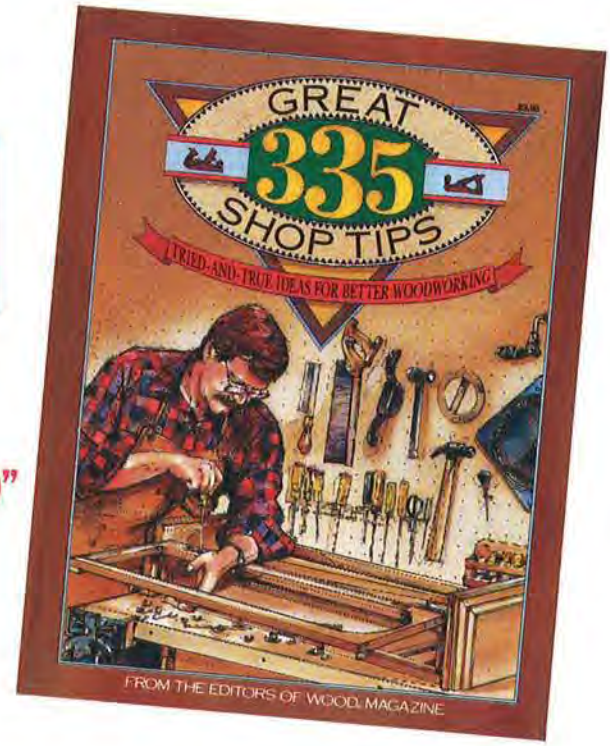

Drill hole in bottom of disc to accommodate pivot pin
Locate stop block to desired radius
Sliding bar with pivot pin
Pivot pin
Stop block

Sand perfect circles

It's practically impossible to cut perfect circles for such projects as wheels or small round tables using a bandsaw or scrollsaw.

TIP: Try a disc sander to achieve true roundness. First, from ¾" plywood, build an auxiliary table (about twice the size of the table on your disc sander) with a ⅜"-deep slot ¾" wide. Now, fit a hardwood bar a few inches longer than the auxiliary table so it slides freely in the slot. About 1" from one end of the slide, fit a 3/32" pin that protrudes ¼" (see drawing *above*). Bore a 3/32" hole at the center of the circular workpiece, place it over the pin on the slide, and slowly advance it into the sanding disc. When you reach the scribed circumference, clamp the slide to the auxiliary table and spin the workpiece for a perfect circle.

—Edward Hanselman, Hoosick Falls, N.Y.



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